DOCUMENT RESUME

ED 162 091 08 CE 018 099

AUTHOR Reece, Jane
TITLE Learning Style Mapping. Research Project in Vocational Education Conducted under Section (131) of Public Law 94-482. Final Report.
INSTITUTION Spartanburg Technical Coll., S.C.
SPONS AGENCY Office of Education (DHEW), Washington, D.C.
PUB DATE 31 Jul 78
NOTE 182p.; Not available in hard copy due to reproducibility problems

EDRS PRICE MF-$0.83 Plus Postage. HC Not Available from EDRS.
DESCRIPTORS *Achievement Rating; *Cognitive Style; Comparative Analysis; Developmental Programs; Educational Methods; *Individualized Instruction; Methods Research; *Office Occupations Education; Postsecondary Education; Program Development; *Remedial Programs; Secretaries; Student Attitudes; *Vocational Counseling; Vocational Schools
IDENTIFIERS Cognitive Style Mapping

ABSTRACT

A project compared the use of cognitive style mapping (CSM) in individualized instruction and counseling with current institutional practices in secretarial science and developmental studies. (CSM is defined as a means of assessing each student's preferences in receiving and processing information--for purposes of personalizing and individualizing instruction.) Phase 1 was concerned with research, development, and training. In this phase the project curriculum area was chosen, and the staff selection and training process was begun. Also an instrument to measure learning styles was developed. Phase 2 dealt with the development, implementation, and evaluation of the delivery system within the curriculum. Phase 3 expanded the project into other curriculum areas. The research design encompassed four small studies: secretarial science individualized instruction component, secretarial science career counseling component, developmental studies individualized instruction component, and developmental studies career counseling component. Studies used two randomized groups, posttest only design. Results indicated no significant difference between achievement and satisfaction of students taught via CSM and those who were not. Also, there was no significant difference in student satisfaction in career counseling between those counseled via CSM and those who were not. Outside evaluators rated the project 1.7 on a scale in which one equals good and five equals poor. (CSS)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED162091

BEST COPY AVAILABLE

FINAL REPORT

781451

LEARNING STYLE MAPPING

RESEARCH PROJECT IN VOCATIONAL EDUCATION

CONDUCTED UNDER SECTION (131) of

PUBLIC LAW 94-482

The Project reported herein was performed pursuant to a grant from the Office of Education, U. S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgement in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

JANE REECE

SPARTANBURG TECHNICAL COLLEGE

SPARTANBURG, SOUTH CAROLINA

JULY 31, 1978

CE 010 960

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

INTRODUCTION

This is a research project in vocational education designed to compare the use of Educational Cognitive Style Mapping in individualized instruction and counseling with practices that had been operative at Spartanburg Technical College. The project was effected in the Secretarial Science and in the Developmental Studies Departments at Spartanburg Tech. It should be noted that the research design for the project, as specified in the original proposal, was rewritten to improve the experimental rigor of the project. For this reason, the following report is submitted in a format of four separate studies: 1. Secretarial Science Individualized Instruction Component, 2. Secretarial Science Career Counseling Component, 3. Developmental Studies Individualized Instruction Component, and 4. Developmental Studies Career Counseling Component. It is felt that this arrangement of the report will promote greater clarity in understanding the research findings. However, in order to present the all of the project activities (the sum of all four studies) as they relate to the objectives in the original proposal, the reader is referred to the Objective Analysis (Appendix B).

All reports that had been promised to the Office of Vocational Education for dissemination are embodied in this report: 1. results of research, 2. curriculum revisions and procedures (Appendix T), 3. structure of career counseling program (Appendix U-1), and 4. career/curriculum information via CSM (Appendix U-2).

ACKNOWLEDGEMENTS

A basic philosophy girding the development of instructional strategies and counseling services at Spartanburg Technical College is that education must be truly personalized to meet the students' goals. This project, designed to ascertain the value of Cognitive Style Mapping in individualized instruction and counseling, was initiated through funding by the South Carolina State Office of Vocational Education. Special mention is extended to Christopher Lerstang, Office of Vocational Education, consultant to the project.

Deep appreciation is expressed to Mr. Joe D. Gault, President and to Dr. Donald Cameron, Vice President of Academic Affairs for their continued support and direction and for facilitating an environment which promotes a personalized approach to education. Grateful acknowledgement is made to Mr. Henry Giles, Vice President of Development for his insight and guidance and also to Dr. Ronald Hampton, former Vice President of Academic Affairs, whose foresight provided the catalyst for this project.

We are especially indebted to the late Dr. Joseph Hill, President of Oakland Community College, Bloomfield Hills, Michigan for creating the Cognitive Style Mapping model which was used in this project. Dr. Derek Nunney, Vice President of Academic Affairs, and Dr. Tom Volk, Director of the Individualized Programmed Learning Laboratory at Oakland Community provided inservice training, encouragement, and materials.

Appreciation is conveyed to the members of the Advisory Committee who

developed the proposal and administered the project during the initial phase: Mr. Henry Giles, Vice President for Development. Miss Sandra Henderson, Former Director of CETA; Mrs. Jocelle Heatherly, Dean of Continuing Education; Mrs. Sally McBrair, former Director of Advancement Studies; and Mrs. Darlene Richardson, Dean of Students.

This project could not have been possible without the untiring, most competent, and productive efforts of the project staff, who bore the major responsibility for development and implementation. They operated beyond the level of statistical significance with infinite degrees of freedom and remained unconfounded in the face of many variables. Many special thanks go to the supportative staff:

Mr. Kenneth Barnhill, Counselor

Mrs. Teresa Lankford, Secretary

And also to the instructional staff:

Mrs. Sandra Boyter, Developmental Studies Instructor

Mrs. Barbara Cobb, Secretarial Science Department Head

Mrs. Debra Davidson, Developmental Studies Instructor

Mr. Tony Ferrara, Developmental Studies Instructor

Mrs. Brenda Hill, Developemental Studies Instructor

Mrs. Melva Huffstettler, Developmental Studies Instructor

Mrs. Willie Lake, Secretarial Science Instructor

Mrs. Jan Moss, Secretarial Science Instructor

Mrs. Shirley Tillotson, Secretarial Science Instructor

Special acknowledgement is made to Dr. Judith Bazemore, of Communication Services, Spartanburg, S. C. for her kind assistance in establishing data collection procedures and in data interpretation. Many thanks to Mr. Boyce Hensley, Computer Programming Department Head for providing technical

assistance. Dr. Tom Griffin, Director of Advancement Studies, Central Piedmont Community College, Charlotte, N. C. gave nurturance and input to the project.

Many thanks to the members of the staffs of Cognitive Style Mapping projects at several schools throughout the nation who most graciously shared time, ideas, and materials: Caldwell Community College, Lenoir, N. C.; Central Piedmont Community College, Charlotte, N. C.; The Niagara Falls Adult Basic Education Program, Niagara Falls, N. Y.;Oakland Community College, Bloomfield Hills, Michigan; Polk Community College, Winterhaven, Florida; and Mountainview Community College, Dallas, Texas.

It is hoped that this research project concerning personalized instruction and counseling services will be seed planted in identifying and meeting the needs and goals of students who are enrolled in technical and vocational education.

Jane Reece
Project Developer
Spartanburg Technical College

C O N T E N T S

Page

Summary..... 1

Secretarial Science:
Individualized Instruction Component..... 4

Statement of Problem..... 5

Goals and Objectives..... 8

Description of Design and Procedures..... 10

Results and Accomplishments..... 16

Evaluation..... 18

Secretarial Science:
Career Counseling Component..... 20

Statement of Problem..... 21

Goals and Objectives..... 24

Description of Design
and Procedures..... 25

Results and Accomplishments..... 29

Evaluation..... 30

Developmental Studies:
Individualized Instruction Component..... 32

Statement of Problem..... 33

Goals and Objectives..... 37

Description of Design and Procedures..... 39

Page

Results and Accomplishments..... 45

Evaluation..... 47

Developmental Studies:
Career Counseling Component..... 49

Statement of Problem..... 50

Goals and Objectives..... 53

Description of Design and Procedures..... 54

Results and Accomplishments..... 57

Evaluation..... 58

Conclusions, Implications, and Recommendations..... 60

Appendicies:

Appendix A: References..... 63

Appendix B: Objective Analysis..... 64

Appendix C-1: CSM Interest Inventory..... 82

Appendix C-2: Cognitive Style Map..... 91

Appendix C-3: Scoring for CSM..... 92

Appendix D: Basic Meaning of CSM Symbols..... 93

Appendix E: Job Description for Project Staff..... 94

Appendix F: Calendar for Inservice Training..... 97

Appendix G: CSM Advisory Committee..... 98

Appendix H-1: Materials and Equipment Purchased for Secretarial Science Department..... 99

Appendix H-2: Materials and Equipment Purchased and Developed for Developmental Studies Department..... 100

Appendix H-3: Materials and Equipment Purchased for Career Counseling..... 101

		Page
Appendix I-1:	Secretarial Science Individualized Instruction Design	102
Appendix I-2:	The Individualized Manpower Training System	104
Appendix J-1:	The Semantic Differential for Secretarial Science Instructional System	105
Appendix J-2:	The Semantic Differential for the Developmental Studies Instructional Study	106
Appendix J-3:	The Semantic Differential for the Secretarial Science Career Counseling Study	107
Appendix J-4:	The Semantic Differential for the Developmental Studies Career Counseling Program	108
Appendix K:	Letter from Secretarial Science Department Head	109
Appendix L:	Participation Agreement	110
Appendix M-1:	Procedures for CSM Interpretation: Instructional Program	111
Appendix M-2:	Procedures for CSM Interpretation: Career Counseling Program	112
Appendix M-3:	Procedures for SDS Interpretation: Career Counseling Program	113
Appendix N-1:	Table 1: Results of t-tests of Differences between Means: Secretarial Sciences: Instructional and Career Counseling Components by Quarter	114
Appendix N-2:	Table 2: Results of t-tests of Differences between Means: Developmental Studies: Instructional and Career Counseling Components	115
Appendix O:	Secretarial Science Student Survey	116
Appendix P:	Project Consultants	117
Appendix Q-1:	Evaluation Schedule	118
Appendix Q-2:	Evaluation Rating Scale	120
Appendix Q-3:	Evaluation Synoptic Statement	123

		Page
Appendix R:	Expansion Plan	126
Appendix S:	Additional Project Activities	129
Appendix T:	Developmental Studies Curriculum Revision via CSM	130
Appendix U-1:	Structure of Career Counseling Program Developmental and Secretarial	132
Appendix U-2:	Career/Curriculum Information via CSM	134
Appendix V:	Project Publicity	166
Appendix W:	Adkins Life Skills Program	167
Appendix X:	The Self Directed Search Form E	169
Appendix Y:	Adult Basic Learning Examination (ABLE)	171

SUMMARY

This project, Learning Style Mapping, operated in two phases. Phase I: Research, Development, and Training was operative from April 1, 1977 - July 1, 1977. During the first half of Phase I, the project was administered by an Advisory Committee. Phase II: Development, Implementation and Evaluation was operative from July 1, 1977 - June 30, 1978. The purpose of the project was to compare the use of Cognitive Style Mapping in individualized instruction and counseling with current institutional practices in Secretarial Science and Developmental Studies.

The Objectives of the project were:

OBJECTIVES

Phase I: Research, Development, and Training

(April 1, 1977 - June 30, 1977)

1. To identify a vocational/technical curriculum area to be used in the project.
2. To select project staff.
3. To provide in-service training to appropriate staff.
4. To identify an instrument for the measurement of learning styles and refine it for use in the project.
5. To evaluate present delivery systems and identify materials needed to implement additional delivery systems.
6. To identify teaching style among staff directly involved with the project.
7. To develop a counseling procedure for matching learning styles with instructional delivery systems.

8. To set up a process for evaluating curricular and career information according to learning style.

9. To develop the structure of a program career counseling based on learning style.

OBJECTIVES

Phase II: Development, Implementation, and Evaluation

(July 1, 1977 - June 30, 1978)

1. To purchase and/or develop instructional materials and equipment for all delivery systems identified in Phase I.

2. To structure each delivery system within the chosen curriculum.

3. To assess and interpret the learning styles of all students in the project curriculum.

4. To identify the learning styles appropriate to specifically identified jobs within the curriculum area.

5. To begin sampling procedures for experimental and control groups.

6. To assess counseling and administrative styles of staff directly involved.

7. To test and place students in specific delivery systems appropriate to their learning styles.

8. To implement each instructional delivery system within the curriculum.

9. To provide supportive counseling services, with an emphasis on job goal exploration and job selection according to learning style, to students participating in the project.

10. To study the effectiveness of the pilot program as it would relate to implementation in other vocational/technical programs.

11. To determine specific objectives and procedures for Phase IV.

Phase III: Expansion
(July 1, 1978 - June 30, 1979)

1. To expand the project into other curriculum areas of the College.

The research design as specified in the original proposal was changed so that it encompassed four small studies: Secretarial Science Individualized

Instruction Component, Secretarial Science Career Counseling Compnent, Developmental Studies Individualized Instruction Component, and Developmental Studies Career Counseling Component. All studies used a two randomized groups, post-test only design. The results of data analysis indicated that there was no significant difference between achievement and satisfaction of students who were taught via CSM and those who were not. It was also shown that there was no significant difference in student satisfaction in career counseling between those who were counseled via CSM and those who were not.

A team of outside evaluators gave the project an average rating of 1.7 (on a 1-5 scale where 1 = Good and 5=Poor) on seven stimulus items and recommended additional inservice for faculty and staff, the change of the format for presenting data to students, and the incorporation of more data about students in the counseling program.

In conclusion, there were no findings of statistical significance in this study. These results may have been due to the limitations of the research and to the small sample. Other researchers (Sanders, 1977) have found CSM to have a significant effect. During the course of the year of this project implementation, a great deal of interest and enthusiasm was generated for CSM at Spartanburg Tech. A plan has been developed to incorporate CSM into the instructional and counseling programs beginning Fall, 1978.

SECRETARIAL SCIENCE
INDIVIDUALIZED INSTRUCTION COMPONENT

STATEMENT OF PROBLEM

In developing instructional methodologies and instructional design for programs of vocational/technical education, a prime consideration is the existence of individual differences in the way in which students receive and process information. People learn in different ways and at different rates. In other words, people demonstrate different styles of learning. Utilizing this concept of individual differences known as cognitive styles to work for the students' advantage has penetrated the educational scene to only a minor extent in comparison to the concept of individual differences in abilities, personality, and value constructs. (Kogan, 1971) Cognitive styling is defined as the way an individual receives and processes information. (Nelson, 1977) It does not include abilities. In the past 70 years, pervasive assumptions and attitudes in the field of education have been based on the philosophy of utilizing individual cognitive style differences as means of determing who succeeds or fails in group competition. Traditionally, the classroom has included only one instructional method or delivery system, usually the classroom lecture, as a vehicle for facilitating learning. The result has been that students, while exhibiting individual differences in the way in which they learn, are forced to compete for grades on mastery of concepts based on one particular method of instruction. The overriding impact of the philosophy of utilizing individual differences as a basis for group competion has led to a situation well described by Bloom (1968)

when he said "Only about one third of the nation's students really master skills and concepts presented to them in school, but ninety-five percent are capable of doing so."

While this is a problem that circuits the entire educational arena, the necessity for the consideration of cognitive styles is particularly manifest in the vocational/technical field which inherently includes instruction in both theory and application or skills. Joseph E. Hill and Derek N. Nunney, (1975) working at Oakland Community College, Michigan, have developed a method of personalizing or individualizing occupational education so that individual differences in learning styles tend to work to the students' advantage. This process is called Cognitive Style Mapping (CSM). It is a way of assessing each individual student's preferences in receiving and processing information. The Cognitive Style Map is generated through responses to a questionnaire (Appendix C-1) and forms a profile or picture of the student as a learner on 28 elements involved in the learning process. (See Appendix D for a more detailed description.) The maps are used in the classroom to give both instructors and the student insight into the conclusions which can be drawn from the student's own expression of learning preferences. The map can also be used as a basis for prescribing or recommending specific instructional delivery systems, such as programmed text, audio-tapes, independent study. In addition, it has been used in developing instructional design.

As a science, cognitive styling is in its infant stages. While there is still much research to be done, the conclusions of studies to date indicate that there is more to the theory than supposition or fantasy. (Sanders, 1977). With this idea in mind Spartanburg Technical College begin to explore the incorporation of Cognitive Style Mapping

into the instructional program in 1974. In Fall, 1974, a pilot program in Cognitive Style Mapping for individualized instruction and counseling was implemented in the Developmental Studies program at Spartanburg Technical College. While this program evidenced success according to self-reports of students, an increase in pre-and post-test scores, and an increase in student retention, it was felt that futher research in a vocational/ technical department would provide more evidence toward the advisability of implementing Cognitive Style Mapping on an institution-wide basis and in other institutions in the State offering vocational/technical programs.

The purpose of this current study was to determine if students who received instruction according to CSM demonstrated more academic achievement and satisfaction with instruction than students who were not exposed to the mapping.

GOALS AND OBJECTIVES

The proposal goals and objective relevant to this study were:

Phase I: Research Development and Training
(April 1, 1977 - June 30, 1977)

1. To identify a vocational/technical curriculum area to be used in the project.
2. To select project staff.
3. To provide inservice training to appropriate staff.
4. To identify an instrument for the measurement of cognitive styles and refine it for use in the project.
5. To evaluate present delivery systems and identify materials needed to implement additional delivery systems.
6. To identify teaching styles among staff directly involved with the project.

Phase II: Development, Implementation, and Evaluation
(July 1, 1977 - June 30, 1978)

1. To purchase and/or develop instructional materials and equipment for all delivery systems identified in Phase I.
2. To structure each delivery system into the chosen curriculum.
3. To assess and interpret the cognitive styles of all students in the project curriculum.
4. To begin sampling procedures for experimental and control groups.
5. To test and place students in specific delivery systems appropriate to their cognitive styles.
6. To implement each instructional delivery system with the curriculum.

7. To study the effectiveness of the pilot program as it would relate to implementation in other vocational/ techincal programs.

8. To determine specific objectives and procedures for Phase IV.

Phase IV: Expansion
(July 1, 1978 - June 30, 1979)

1. To expand the project into other curriculum areas of the college.

* It should be noted that these objectives are relevant only to treatment of the experimental group of this project. Objectives for the total project can be found in Appendix B.

DESCRIPTION OF DESIGN AND PROCEDURES

It should be noted that design of the original proposal proved to be too cumbersome for research purposes. The original proposed experimentation was divided into four small studies for research purposes. Therefore, the description of the design and procedures in the following paragraphs are pertinent only to the study of the Secretarial Science instructional program. Response to the objectives as listed in the original proposal are found in Appendix B.

Selection of the curriculum for the study was made by surveying all Spartanburg Tech curricula and assessing each on the basis of several criteria that the CSM Advisory Committee had established as indicators for cohesiveness with the grant objectives. The indicators were: 1. the number of delivery systems available, 2. the number of freshmen expected in the fall, 3. the number of full-time faculty teaching in the department, 4. the department's willingness to participate in the project, and 5. the number of job options available to students entering the curriculum. After narrowing the curricula to four, the Advisory Committee selected Secretarial Science. The four curricula were then placed in a priority order which was subject to the approval of the State Department of Vocational Education. This approval was received.

While project staff were to be hired in April, Project Developer, Jane Reece; Counselor, Ken Barnhill; and Secretary, Teresa Lankford were hired August 1. Job descriptions for these positions are in Appendix E.

Complications arising from receiving position approval from the State Personnel Office were impediments to this objective. An Advisory Committee administered the project during Phase I. While a lack of project staff did limit the achievement of several objectives during Phase I, they were accomplished in Phase II.

Inservice training in CSM was begun at the inception of the project and has continued throughout the project. Inservice training has included visiting other colleges and schools using CSM, attending CSM workshops and conferences, and having the availability of literature and audio-visual materials on CSM. Of necessity, two visits to CSM projects were made prior to the hiring of project staff. Advisory Committee members visited a project at Oakland Community College, Michigan and Polk Community College, Florida. Fortunately this committee included personnel who were later to be chosen as the project developer and instructors. After the selection of staff, visitations were made to Mountainview Community College and Cedar Valley Community College, Dallas, Texas and to the Adult Education Center, Niagara Falls, New York. The staff made local visits to projects involving adult learning, but not via CSM, at Greenville Technical College, Greenville, S. C. and Piedmont Technical College, Greenwood, S. C. Staff attended two conferences at Mountainview in Dallas and one conference in Charlotte, N. C.

Inservice training sessions held at Spartanburg Technical College included a two-day workshop involving empirical mapping and prescription writing held by Dr. Tom Volk, Oakland Community College. The staff also viewed a video-tape presentation by Dr. Joe Hill, originator of CSM. During the project the Project Developer prepared a file of literature on CSM which was available in each curriculum department and in the project office. The project purchased 24 microfilmed dissertations on CSM, a

bibliography on the Witkin CSM model, and encouraged the order of the CSM journals by the College library. In addition, the project developer and the counselor held inservice training for the Student Services staff and the Allied Health Division. The procedure used to develop inservice training has been to evaluate the training needs of the staff according to their expressed needs and to look for options to meet these needs. A minimum of one long distance trip and one local trip has been available to each faculty and staff. A calendar of inservice training is found in Appendix F.

A pencil and paper preference inventory for Cognitive Style Mapping was written by Spartanburg Tech faculty and staff with consultation from Tom Volk, Oakland Community College. It has a 6.0 reading level, requires approximately 45 minutes to administer, and can be hand-scored. A copy of the inventory is found in Appendix C.

When the original proposal for this study was written, the Advisory Committee's (Appendix G) concept for the implementation of CSM was that implementation necessitated the use of a number of different instructional delivery systems (i.e. programmed text, audio-cassettes, VTR, etc.) However, the reality of the curriculum structure in Secretarial Science proved the necessity of multi-delivery systems to be a fallacious assumption. While the Secretarial Science Department Head did purchase additional equipment and materials (listed in Appendix H-1) in order to appeal to students of various cognitive styles, the curriculum was not separated into separate delivery systems. This is because Secretarial Science as a career field has certain cognitive requirements such as learning by hearing as well as by sight, structure, punctuality, etc., that must be a part of the learning situation. So the instructional design was altered only by

the addition of equipment and materials. The original proposal had specified that instructional materials be developed. This also proved to be an impossibility. The impediment to the development of materials was that faculty and staff had not been selected during the project research and development phase when faculty release time was available.

Having reviewed activities that were proposed but not eventuated in the project for instructional design, it should be noted that CSM was effectively implemented in the instructional methodology in the Secretarial Science Department. Since Secretarial Science chose to work with their existing self-paced instructional design (for description, see Appendix I-1) and to supplement it with additional materials, the map was used in instructional methodology. That is , instructors used the map in personalizing their approach to the students. By being aware of the cognitive styles of the individual students, the instructors could help students to capitalize on their learning strengths and to work to overcome their weaknesses.

Experimental Design:

This study took place from August 20, 1977 - June 1, 1978 in the Secretarial Science Department at Spartanburg Technical College. The problem was to determine if students who received their instruction in Typing and Shorthand experienced greater achievement and satisfaction than those who did not. Satisfaction would be measured by response on a semantic differential (Appendix J-1) and by retention.

Hypothesis One: There will be a significant difference on measures of achievement between students who receive their instruction according to their Cognitive Style Map and those who do not.

IV: Method of Instruction

DV: Achievement (Rate of Progress)

1. Number of units of self-paced instruction completed.
2. Number of first time masteries of units of self-paced instruction.
3. Number of units of self-paced instruction that were exempted.
4. Final grades in typing and shorthand courses.

Hypothesis Two: There will be a significant difference on measures of student satisfaction between students who receive their instruction according to their Cognitive Style Map and those who did not.

IV: Method of Instruction

DV: Satisfaction with coursework

1. Response on a semantic differential scale.
2. Retention rate.

Subjects: The subjects were the first students to register in the typing and shorthand classes in the one year Technical Secretary program at Spartanburg Technical College. The total number of students enrolled in the program was 143. It was necessary to take the first forty enrollees in order to administer the inventory and effect sampling procedures prior to the first day of class. The 38 subjects were all female and ranged in age from 17 - 30 years. The racial mix was 30 white and 8 black.

Procedures:

Forty students were contacted by letter (Appendix K) and asked to attend a special orientation 2 weeks prior to the beginning of school. At the orientation all the students were asked to participate in a project involving learning and to complete an inventory for the project. They also signed a participation agreement (Appendix L). All of the students took

the CSM Interest Inventory at that time. From the 40 students requested to attend the orientation, 38 participated. After the orientation, the students were assigned to experimental and control groups, 19 in each group. The groups were stratified for age and race.

Instructors had been selected for the project based on their prior exposure and experience with CSM. Four instructors participated in the project; there was a typing and a shorthand instructor for the experimental group and a typing and a shorthand instructor also for the control group.

Prior to the beginning of school the counselor had scored the Cognitive Style Mapping Interest Inventories and had developed a Cognitive Style Map or profile (See Appendix C-1) for each student. The individual student maps included a prescription or recommendations for instruction for each student. The maps were given to the instructors prior to school.

On the first day of class the counselor interpreted the maps in a group session. He then arranged for individual interpretations for each student. Procedures used for the individual interpretations are found in Appendix M-1.

Throughout the year, the instructors were using the concepts of cognitive styling to understand and facilitate student learning. In addition, the counselor and the instructors met at least one time each quarter, and sometimes more frequently on an informal basis, to discuss student progress and also to have student conferences.

RESULTS AND ACCOMPLISHMENTS

The hypothesis that there will be a significant difference on measures of achievement between students who receive their instruction according to their Cognitive Style Map and those who do not was tested by a t-test of a difference between means of the experimental and control groups' performance an achievement measures administered at the end of each of three school-year quarters. For the first quarter there were no significant differences. Only in the comparison of means between experimental and control groups for final grade did the t-value approach statistical significance. There were no significant differences in the second quarter. At the end of the third quarter, the t-value for mastery was significant at the .01 level favoring the experimental group. These results lead to the conclusion that group status has little overall effect on achievement.

Further analysis was done by determining Pearson correlation cocfficients: correlation of group status to performance on achievement measures administered at the end of each quarter. At the end of the first quarter, there was a significant (.03 level) but negative correlation between group status and final grade. There were no significant correlations at the end of the second or third quarters.

The hypothesis that there will be a significant difference on measures of student satisfaction between students who receive their instruction according to their Cognitive Style Map and those who did not was tested at the end of the third quarter by a t-test of differences between means of

the control group and experimental groups' response on a semantic differential. There was no significant difference in means. Further analysis was done by determining the correlation coefficient for group to degree of routine response on the semantic differential. There was no significant relationship and the correlation was negative.

Table representing the previously described data are found in Appendix N-1, Table 1.

For the instruction component of the Secretarial Science experiment, the conclusion is that group status has little overall effect an achievement and no effect on student satisfaction.

EVALUATION

Evaluation, as specified in the original proposal, was to have included both in-house and outside evaluation. In-house evaluation took several forms. The project was monitored throughout the year by the Project Developer and the Vice President for Academic Affairs. In November, an informal survey of the attitudes of the experimental group was taken. The project developer interviewed four students (one fifth of the class) through the use of a standardized interview. Summary of the results are to be found in Appendix O. Instructors who taught the experimental (CSM) project were asked to respond to an anonymous questionnaire. Responses on the instructor questionnaire indicated an overall favorable opinion of the use of CSM. The final type of in-house evaluation was the data analysis.

While the results of the research has been previously described, it should be noted that the design is a change form the design that was originally described in the proposal. This augmentation of the original was the recommendation of a consultant with expertise in the area of research design. The proposal change was approved by the funding agency. The original proposal contained confounding variables and would have fostered cumbersome reporting of results. Therefore, the original proposal was divided into four research studies: Career Counseling in Developmental Studies, Individualized Instruction in Developmental Studies, Career Counseling in Secretarial Science, and Individualized Instruction in Secretarial Science. So the proposal was altered for research purposes.

However, the objectives of the original proposal were retained for use with the Cognitive Style Mapping aspects of career counseling and individualized instruction in Secretarial and Developmental.

At the end of the total project, or on May 11 and 12, 1978, a third-party evaluation team (Appendix P) with expertise in career counseling, Cognitive Style Mapping and individualized instruction reviewed the project. Each of the three member team had received a copy of the Objective Analysis (Appendix B) for reading prior to arrival at Spartanburg Tech. They were instructed that their evaluation was to focus on the programmatic implementation of CSM in counseling and instruction in the Secretarial Science and the Developmental Studies Departments rather than on the research design. The team interviewed students, instructors, counselors, and administrators according to the schedule in Appendix Q-1. The team, after having read the original proposal and the objective analysis were assigned to interview, to observe, and to respond to a rating scale on the total project. The evaluators were also asked to make a synoptic statement of their observations of the total project. These reports are found in Appendix Q-2 and in Appendix Q-3.

SECRETARIAL SCIENCE
CAREER COUNSELING COMPONENT

STATEMENT OF PROBLEM

Major focal points for comprehensive career guidance programs in two year post-secondary vocational/technical schools tend to spotlight two potential milestones for student career exploration and decision-making: 1. what curriculum/career field to enter 2. what sort of job to take within the career field upon graduation. Due to the nature of the two-year, post-secondary vocational/technical schools, decisions and explorations concerning the selection of a curriculum or a career field are optimumally incorporated into the admissions process. The decision regarding what sort of job to take within the selected career field becomes a concern to the student who is enrolled in vocational/technical classes.

Spartanburg Technical College had established a program of career planning to assist applicants in making curriculum/career decisions. In the development of a program of student career planning and counseling to assist students in exploring jobs and establishing job goals for graduation, one concern had been the selection of a counseling or assessment device that would expedite self and job-goal exploration and decision-making among students. A counseling tool was needed which would serve as an adjunct to the group career counseling and career education experiences. In addition, it was necessary that the device facilitate both self-analysis and analysis of various jobs. A tool was needed which would also serve to facilitate individual counseling.

The theory undergirding the assessment device would serve as the conceptual framework for this entire component (job goal exploration and selection) of the student counseling program.

Two career counseling tools that met the selection criteria were the Self-Directed Search, (SDS) Form E (Appendix X) and Cognitive Style Mapping (CSM).

The Self-Directed Search, Form E is a career counseling inventory based on John L. Holland's (1973) theory of vocational choice. Holland's theory is a typology of six personality types and six model environments: Realistic, Investigative, Artistic, Social, Enterprising and Conventional. Types and environmental models are carefully defined. The theory is based on the assumption that people seek occupational environments that permit them to express their personalities. The results of the Form E inventory yield a two letter summary code which depicts the student's personality pattern according to his or her resemblance to the six personality types. Hence the summary code can be any combination of R I A S E C. The summary code is used to locate suitable codes in an accompanying occupational classification booklet, The Occupations Finder.

Cognitive Style Mapping is one of seven Educational Sciences developed by Dr. Joseph Hill (1975) at Oakland Community College, Michigan. Cognitive Style is ascertained through the results of an inventory (Appendix C-1) and through a counseling interview. The map (Appendix C-2) itself is a profile which depicts the way or manner that a person obtains meaning from his or her world. The Cognitive Style Map is composed of scores (Appendix C-3) on twenty-eight elements (Appendix D) which are involved in the learning process. So the Cognitive Style Map as a career counseling tool lends itself to self analysis. Just as each individual

has his or her cognitive style, Rose and Xenos (1975) have postulated that occupation also has a characteristic cognitive style by design. The cognitive styling process can therefore also be used in conjunction with a booklet of the cognitive styles of occupations (Appendix U-1).

The purpose of this study was to compare The Self-Directed Search, Form E with Cognitive Style Mapping for use as a counseling tool among students enrolled in the Secretarial Science Department at Spartanburg Technical College. The concern was to determine which device facilitated greater student satisfaction with individual and group career counseling. To date, there had been no previous studies to compare the two assessment devices.

GOALS AND OBJECTIVES

The goals and objectives of this project as stated in the original proposal were:

1. To provide inservice training on the SDS and CSM to the counselor.

2. To develop the structure of a program of career counseling based respectively on the SDS and CSM.

3. To identify the cognitive styles appropriate to specifically identified jobs within the curriculum area.

4. To provide supportative counseling services with an emphasis on job-goal exploration via the SDS and CSM to students participating in the project.

5. To study the effectiveness of the project as it would relate to implementation in other vocational/technical programs.

DESCRIPTION OF DESIGN AND PROCEDURES

The planning phase of the project began in fall, 1977 so that prior to the initiation of the project, the counselor participated in workshops (Appendix F) on theory and application of CSM and the SDS. During the planning stage the counselor, in consultation with the Secretarial Science instruction staff, also developed the structure of the counseling program (Appendix U-2). While the SDS, Form E is an established assessment device with a reading level appropriate for adults at the fourth, fifth, and sixth grade levels, there was no existing CSM Interest Inventory which was appropriate for the student population. The counselor and instructional staff revised a CSM inventory which had been developed by Dr. Tom Volk of Oakland Community College so that it was of an appropriate sixth grade reading level. The inventory is Appendix C-1. During the planning phase, the counselor also developed a booklet of the cognitive styles characteristic of the vocational/technical curricula offered (Appendix U-2) at Spartanburg Tech and learned how to describe the cognitive style characteristic of any other job not offered in the TEC curriculum. Since the SDS is already accompanied by an Occupations Finder which describes occupations according to SDS code, the previously described procedure was not necessary for the SDS. The original objective had been to identify the cognitive styles appropriate to specifically identified jobs within the Secretarial career field: receptionist, clerk typist, medical secretary, legal secretary, executive secretary and administrative assistant. Attempts by the counselor

and two Secretarial Science instructors revealed that the mapping process did not provide for discriminations among jobs in the career field. Rather, one common Cognitive Style Map was generated for the entire Secretarial field. It is found in Appendix U-2.

Experimental Procedures

This was a study that took place in the Secretarial Science Department at Spartanburg Technical College for three academic quarters in the school year 1977-78. The study began August 20, 1977 and terminated May 12, 1978. The problem was to determine which counseling tool, Cognitive Style Mapping or the Self-Directed Search, Form E, would promote greater student satisfaction with individual and group counseling as measured by response on a semantic differential (Appendix J-3).

Hypothesis: There will be a significant difference in the average degree of positive response on a student rating scale (semantic differential) of the career counseling program between students who received their career counseling according to the Cognitive Style Map and those who received it according to Holland's Self-Directed Search, Form E.

IV: Method of counseling

DV: Satisfaction

Subjects: The subjects were the first 38 students to register in typing and shorthand classes in the one year Technical Secretary program at Spartanburg Technical College. The total number of students enrolled in the program was 143. It was necessary to take the first forty enrollees in order to administer the inventory and effect sampling procedures prior to the first day of class. The 38 subjects were all female and ranged in age from 17 - 30 years. The racial mix was 30 white and 8 black.

Procedures:

Forty students were contacted by letter (Appendix K) and asked to attend a special orientation which was held two weeks prior to the beginning of school. At the orientation all the students were asked to participate in a project involving learning and to complete an inventory for the project. They also signed a participation agreement (Appendix L). All of the students took the CSM Interest Inventory at that time. From the 40 students requested to attend the orientation, 38 participated. After the orientation, the students were assigned to experimental and control groups, 19 in each group. The groups were stratified for age and race.

On the first day of class, September 8, 1977, the counselor administered the Self-Directed Search, Form E (Appendix X) to the control group. Prior to the first day of class the counselor had scored the Cognitive Style Mapping Interest Inventories (Appendix C-1) for the experimental group and had generated a Cognitive Style Map or profile for each student (Appendix C-2). The counselor interpreted the CSM in a group session on the first day. The counselor interpreted the SDS in a group session on the second day of class. Individual sessions for follow-up of the group sessions were scheduled for the next two weeks. Each student in the project participated in an individual interpretation session. Procedures used to the map interpretation are found in Appendix M-2, and procedures used to interpret the SDS are found in Appendix M-3.

In addition to the individual counseling sessions, six group career counseling sessions and presentation on careers were held throughout the year. A list of the topics for the group sessions is found in Appendix U-2. It should be noted that in each presentation and in the discussions following the presentations, the topic was discussed through the conceptual framework of

the SDS and CSM. For an example, in March,slide tapes on various secretarial careers were presented. The careers in the slide tapes were discussed in terms of the SDS codes and CSM elements that were dominant in the people and environments represented.

At the end of the third academic quarter or on May 8, 1978, a rating scale, the semantic differential, was administered to determine student satisfaction with the two career counseling programs.

RESULTS

The hypothesis that there will be a significant difference in the average degree of positive response on a student rating scale (semantic differential) of the career counseling program between students who received their career counseling according to the Cognitive Style Map and those who received it according to Holland's Self-Directed Search, Form E was tested by a t-test of a difference between means of the experimental and control groups' response on a semantic differential. There was no significant difference between means. Further analysis was done by determining Pearson correlation coefficients: correlation of degree of positive response on the semantic differential to group status. This relationship was shown to be negative. These results suggest the following conclusion: group status has no effect on the students' degree of satisfaction with the career counseling sessions.

These data are reported in Table 1, Appendix N-1.

EVALUATION

Evaluation of the project, as stated in the original proposal, was to include the previously described analysis of data as well as an evaluation by a third-party evaluation team. In addition, the project was monitored throughout the year by the Project Developer and the Vice President of Academic Affairs. In November, 1977 the Project Developer also interviewed four students in the CSM group through the use of a standard interview. The results were favorable to CSM and are found in Appendix O.

While the results of the research have been described, it should be noted that the design is an alteration from the design that was originally described in the proposal. This augmentation of the original proposal was the recommendation of a consultant with expertise in the area of research design; the proposal change was approved by the funding agency. The original proposal contained confounding and intervening variables and would have fostered cumbersome reporting of results. Therefore, the original proposal was divided into four small research studies: Career Counseling in Secretarial Science, Individualized Instruction in Secretarial Science, Career Counseling in Developmental Studies and Individualized Instruction in Developmental Studies. So the proposal was changed for research purposes. However, the objectives of the original proposal were retained for use with the Cognitive Style Mapping aspects of career counseling and individualized instruction in Secretarial Science.

At the end of the total project, or on May 11 and 12, 1978, a third-party evaluation team (Appendix P) with expertise in career counseling, Cognitive Style Mapping, and individualized instruction reviewed the project. Each of the three-member team had received a copy of the Objective Analysis (Appendix B) for reading prior to arrival at Spartanburg Tech. They were instructed that their evaluation was to focus on the programatic implementation of CSM in counseling and instruction in the Developmental Studies and Secretarial Science Departments rather than on the research design. The team interviewed faculty, staff, and students involved in the project. The interview schedule is found in Appendix Q-1.
The team, having read the original proposal and the objective analysis were assigned to interview, to observe, and to respond to a rating scale on the total project. The evaluators were also asked to make a synoptic statement on their observations of the total project. Those reports are found in Appendix Q-2 and in Appendix Q-3. In brief, the third-party evaluation comments relevant to the study of career counseling in the Secretarial Science program were: 1) that the overall effectiveness of the CSM component was a 1.5 on a scale from 1.0 (Excellent) to 5.0 (Poor) and 2) that the Counselor-Instructor working relationships had been excellent. The evaluation team did recommend that the project improve the forms and mechanisms for presenting CSM information to students in a more understandable fashion. Also, the team recommended that the project incorporate the use of more demographic in counseling with students via CSM.

DEVELOPMENTAL STUDIES
INDIVIDUALIZED INSTRUCTION COMPONENT

STATEMENT OF PROBLEM

In developing instructional methodologies and instructional design for programs of adult education, prime consideration must be given to the existence of individual differences in the way people receive and process information. People learn in different ways and in different rates. In other words, people demonstrate different styles of learning. Utilizing this concept of individual differences known as cognitive styles, to work for the students' advantage has penetrated the educational scene to only a minor extent in comparison to the concept of individual differences in abilities, personality, and value constructs. (Kogan, 1971). While there are many systemized programs of adult learning which are individualized for students of various ability levels; few, if any, of these systems focus on individualization according to cognitive style. Cognitive styling is defined as the way or manner in which an individual receives and processes information (Nelson, 1977).

In the past 70 years, pervasive attitudes and assupmtions in the field of education have been based on the philosophy of utilizing individual cognitive style differences as a means of determining who succeeds or fails in group competition. Traditionally, the classroom has included only one instructional method or delivery system, usually the classroom lecture, as a vehicle for facilitating learning. The result has been in that the students, while exhibiting individual differences in the way in which they learn, are forced to compete for mastery of concepts and grades while involved in one particular method of instruction. The overriding

impact of the philosophy of utilizing individual differences as a basis for group competition has lead to a situation well described by Bloom (1968), when he said, "Only about one third of the nation's students really master skills and concepts presented to them in school, but ninety-five per-cent are capable of doing so."

This is a problem that permeates all considerations in education. It is especially manifest in the field of Adult Education and Developmental Studies where students, as evidenced by the fact of their enrollment in these programs, have usually not experienced successful academic performance as measured by grades.

Joseph E. Hill and Derek N. Nunney (1975), working at Oakland Community College, Michigan have developed a method of personalizing or individualizing education so that individual differences in student learning styles work to the students' advantage. This process is called Cognitive Style Mapping (CSM). It is a way of assessing each individual student's preferences in receiving and processing information. The Cognitive Style Map is generated through responses to a questionnaire and forms a profile or picture of the student as a learner on 28 elements involved in the learning process. (See Appendix D for a more detailed description.) The maps are used in the classroom to give both the instructors and the students insight into the conclusions which can be drawn from the students' own expressions of learning preferences. The map can also be used as a basis for prescribing or recommending specific instructional delivery systems such as programmed text, audio-tapes, independent study. In addition, it also has uses in developing instructional design.

As a science, cognitive styling is in its'infant stages. While there is still much research to be done, the conclusions of studies to date indicate that there is more to the theory than supposition or fantasy. (Sanders, 1977). With this idea in mind, Spartanburg Technical College began to explore the incorporation of Cognitive Style Mapping into the instructional program in 1974. In Fall, 1974, a pilot program in Cognitive Style Mapping for individualized instruction and counseling was implemented in the Developmental Studies program at Spartanburg Tech. While this program evidenced success according to self-reports of students, and an increase between pre-and post-test scores and in retention as compared with previous quarters, it was felt that futher research and pilot-testing would provide more evidence toward the advisability of implementing Cognitive Style Mapping throughout the entire reading, language and math curricula in the Developmental Studies Department.

At the inception of the study, the instructional design for Developmental Studies was the Individualized Manpower Training System (IMTS) (Appendix I-2) a self-paced, self-instructional, multi-media individualized learning system which was developed for adults, grade levels four through twelve. The problem was to decide if students enrolled in Developmental Studies at Spartanburg Technical College who were taught math and language skills through an alteration of the IMTS as facilitated by the use of CSM would evidence greater achievement and greater satisfaction with their course work than students who were taught through the unaltered IMT System. Alteration of the IMTS via CSM would include utilization of five alternative instructional delivery systems: 1) programmed written materials, 2) audio-tapes and VTR, 3) faculty-lead seminars, 4) youth-tutorial, and 5) the IMTS System. Use of multi-

delivery systems would have appeal to many different cognitive styles. Not only would the design of the IMTS be altered, as described in Appendix I-2, but the instructors would also have maps on all students enrolled in math and language skills and would use the maps to facilitate their awareness of individual students' learning strengths and weaknesses.

GOALS AND OBJECTIVES

The proposal goals and objectives relevant to this study were:

Phase I: Research, Development and Training
(April 1, 1977 - June 30, 1977)

1. To identify a vocational/technical curriculum area to be used in the project.
2. To select project staff.
3. To provide inservice training to appropriate staff.
4. To identify an instrument for the measurement of cognitive styles and refine it for use in the project.
5. To evaluate present delivery systems and identify materials needed to implement additional delivery systems.
6. To identify teaching style among staff directly involved with the project.

Phase II: Development, Implementation, and Evaluation
(July 1, 1977 - June 30, 1978)

1. To purchase and/or develop instructional materials and equipment for all delivery systems identified in Phase I.
2. To structure each delivery system into the chosen curriculum.
3. To assess and interpret the cognitive styles of all students in the project curriculum.
4. To begin sampling procedures for experimental and control groups.
5. To test and place students in specific delivery systems appropriate to their cognitive styles.
6. To implement each instructional delivery system within the curriculum.

7. To study the effectiveness of the pilot program as it would relate to implementation in other vocational/ technical programs.

8. To determine specific objectives and procedures for Phase IV.

Phase III: Expansion
(July 1, 1978 - June 30, 1979)

1. To expand the project into other curriculum areas of the college.

It should be noted that these objectives are relevant only to treatment of the experimental group of this project. Objectives for the total project can be found in Appendix B.

DESCRIPTION OF DESIGN AND PROCEDURES

It should be noted that design of the original proposal proved to be too cumbersome for research purposes. The experimentation which had been proposed was divided into four small studies for research purposes. Therefore, the description of the design and procedures in the following paragraphs are pertinent only to the study of the Developmental Studies instructional program. Response to the objectives as listed in the original proposal are found in Appendix B.

Selection of the curriculum for the study was made by surveying all Spartanburg Tech curricula and assessing each on the basis of several criteria that the CSM Advisory Committee had established as indicators for cohesiveness with the grant objectives. The indicators were: 1. the number of delivery systems available, 2. the number of students expected in the fall, 3. the number of full-time faculty teaching in the department, 4. the department's willingness to participate in the project. After narrowing the curricula to four, the Advisory Committee selected Developmental Studies. The four curricula were then placed in a priority order which was subject to the approval of the State Department of Vocational Education. This approval was received.

While project staff were to be hired in April, Project Developer, Jane Reece; Counselor, Ken Barnhill; and Secretary, Teresa Lankford, were hired August 1. Job description for these positions are in Appendix E. Complications arising from receiving position approval from the State Personnel

Office were impediments to this objective. An Advisory Committee administered the project during Phase I. While a lack of project staff did limit the achievement of several objectives during Phase I, they were accomplished in Phase II.

Inservice training in CSM was begun at the inception of the project and has continued throughout the project. Inservice training has included visiting other colleges and schools using CSM, attending CSM workshops and conferences, and having the availability of literature and audio-visual materials on CSM. Of necessity, two visits to CSM projects were made prior to the hiring of project staff. Advisory Committee members visited projects at Oakland Community College, Michigan and Polk Community College, Florida. Fortunately this committee included personnel who were later to be chosen as the project developer and instructors. After the selection of staff, visitations were made to Mountainview Community College and Cedar Valley Community College, Dallas Texas and to the Adult Education Center, Niagara Falls, New York. The staff made local visits to projects involving adult learning, but not via CSM, at Greenville Technical College, Greenville, S. C., and Piedmont Technical College, Greenwood, S. C. Staff attended two conferences at Mountainview in Dallas and one conference in Charlotte, N. C.

Inservice training sessions held at Spartanburg Technical College included a two-day workshop involving empirical mapping and prescription writing held by Dr. Tom Volk, Oakland Community College. The staff also viewed a video-tape presentation by Dr. Joe Hill, originator of CSM. During the project the Project Developer prepared a file of literature on CSM which was available in each curriculum department and in the project office. The project purchased 24 microfilmed dissertations on CSM, a bibliography on the Witkin CSM model, and encouraged the order of the CSM

journals by the College library. In addition, the project developer and the counselor held inservice training for the Student Services staff and the Allied Health Division. The procedure used to develop inservice training has been to evaluate the training needs of the staff according to their expressed needs and to look for options to meet these needs. A minimum of one long distance trip and one local trip has been available to each faculty and staff. A calendar of inservice training is found in Appendix F.

A pencil and paper preference inventory for Cognitive Style Mapping was written by Spartanburg Tech faculty and staff with consultation from Tom Volk, Oakland Community College. It has a 6.0 reading level, requires approximately 45 minutes to administer, and can be hand-scored. A copy of the inventory is found in Appendix C.

Math and language skills were to be taught, with flexibility, through five different delivery systems according to the students' cognitive styles: 1. programmed written materials, 2. audio-tapes, VTR, 3. faculty-lead seminars, 4. youth-tutorial and 5. the IMT System. The map was also to be used as a conceptual framework for providing students and faculty with information about student learning styles.

In order to supplement the IMTS to accomodate these various delivery systems, the following sources were utilized: 2. Some instructional materials were already available in the Developmental program. 2. Equipment and instructional materials were purchased under the auspices of this project (Appendix H-2) and 3. Instructional materials were developed under the auspices of this project.

Experimental Design

This was a study of seven weeks duration in Spring, 1978. It was held in the Developmental Studies Department at Spartanburg Technical College. The problem was to determine if Developmental Studies students who received their instruction via CSM experienced greater achievement and satisfaction with their coursework than students who received their instruction through the IMTS. Achievement would be measured on post-test scores with the Adult Basic Learning Examination (ABLE), Level III, Form A. Satisfaction would be measured by response on a semantic differential (Appendix J-2) and by retention rate.

Hypothesis One: There will be a significant difference on measures of achievement between students who receive their instruction according to their Cognitive Style Map and those who receive their instruction through the unaltered IMTS.

IV: Method of Instruction

DV: Achievement (Post-test with ABLE)

1. Vocabulary
2. Spelling
3. Reading
4. Computation
5. Problem Solving
6. Total Arithmetic

Hypothesis Two: There will be a significant difference on measures of student satisfaction between students who receive their instruction according to their Cognitive Style Map and those who receive their instruction through the unaltered IMTS.

IV: Method of Instruction

DV: Satisfaction with coursework

1. Response on semantic differential
2. Retention

Subjects: The subjects were 27 students enrolled in the YETP program, a component of the Developmental Studies program at Spartanburg Technical College. Students ranged in age from 16 - 23 years. There were eleven males, sixteen females, sixteen blacks and eleven whites. All of the students enrolled in the YETP for the seven week spring session in 1978 participated in the study.

Procedures:

The 27 subjects who comprised the total YETP enrollment from February 14 - April 28, 1978 were randomly assigned to experimental and control groups for math and language skills classes. The groups were stratified for age, sex, race and reading scores on the Tests of Adult Basic Education (TABE).

On the first day of class, students were asked to participate in a project involving learning and to complete an inventory for the project. All students agreed to participate and signed a participation agreement. (Appendix L) The CSM Interest Inventory (Appendix C-1) was administered to all YETP students at that time.

Instructors had been selected for the project based on their prior experience with and exposure to CSM. Two instructors participated in the project. One instructor taught language usage and math via CSM and one taught with the unaltered IMTS.

Prior to the second day of class, the counselor had scored the Cognitive Style Mapping Interest Inventories and had developed a Cognitive Style Map or profile (See Appendix C-1) for each student. The individual

student maps included a "prescription," or recommendation for instruction for each student. The prescriptions included a delivery system of instruction for language skills and math. Prescriptions also included suggestions on how the student and the instructor could assist the student in capitalizing on learning strengths and in overcoming weaknesses.

On the second day of class the counselor interpreted the maps in a group session. He then arranged for individual interpretations for each student. Procedures used for individual interpretations are found in Appendix M-1.

Throughout the seven week period, the instructor was using the concepts of cognitive styling to understand and facilitate student learning and to teach through the five delivery systems. In addition, the counselor and the instructors met twice during the seven week period to review all of the students' maps and to discuss their academic performance. Informal meetings to discuss progress of individual students were also held.

RESULTS AND ACCOMPLISHMENTS

The hypothesis that there would be a significant difference on measures of achievement between students who receive their instruction according to their Cognitive Style Map and those who receive their instruction according to the unaltered IMTS was tested by a t-test of a difference between means of the experimental and control groups' performance on achievement measures administered at the end of the seven week period. There were no significant differences. These results lead to the conclusion that group status has little overall effect on achievement.

Futher analysis was done by determining Pearson Correlation Coefficients: correlation of group status to performance on achievement measures administered at the end of the seven weeks. There were no significant correlations.

The hypothesis that there will be a significant difference on measures of student satisfaction between students who receive their instruction according to their Cognitive Style Map and those who receive their instruction according to the unaltered IMTS was tested at the end of the seven weeks by a t-test of differences between means of the control group and the experimental groups' response on a semantic differential. There was no significant difference in means. Futher analysis was done by determining the correlation coefficient for the group to the degree of positive response on the semantic differential. There was not significant relationship and the correlation was negative.

Tables representing these data are found in Appendix N-2, Table 2.

For the instructional component of the Developmental Studies experiment, the conclusion is that group status has little overall effect on achievement and no effect on student satisfaction.

EVALUATION

Evaluation, as specified in the original proposal, was to have included both in-house and outside evaluation. In-house evaluation took several forms: The project was monitored throughout the year by the Project Developer and the Vice President of Academic Affairs. Data analysis for the project have been previously described.

While the results of the research have been addressed,it should be noted that the design is a change from the design that was originally described in the proposal. This augmentation of the original was the recommendation of a consultant with expertise in the area of research design. The proposal change was approved by the funding agency. The original proposal contained confounding variables and would have fostered cumbersome reporting of results. Therefore, the original proposal was divided into four research studies: Career Counseling in Developmental Studies, Individualized Instruction in Developmental Studies, Career Counseling in Secretarial Science, and Individualized Instruction in Secretarial Science. So the proposal was altered for research purposes. However, the objectives of the original proposal were retained for use with the Cognitive Style Mapping aspects of career counseling and individualized instruction in Secretarial and Developmental.

At the end of the total project, or on May 11 and 12, 1978, a third-party evaluation team (Appendix P) with expertise in career counseling, Cognitive Style Mapping, and individualized instruction

reviewed the project. Each of the three-member team had received a copy of the Objective Analysis (Appendix B) for reading prior to arrival at Spartanburg Tech. They were instructed that their evaluation was to focus on the programmatic implementation of CSM in cousneling and instruction in the Secretarial Science and Developmental Studies Departments rather than on the research design. The team interviewed students, instructors, counselors, and administrators according to the achedule in Appendix Q-1. Unfortunately, all Developmental students who had participated in the project had terminated their studies at the time of the outside evaluation. The team, after having read the original proposal and the objective analysis, were assigned to interview, to observe, and to respond to a rating scale on the total project. The evaluators were also asked to make a synoptic statement on their observations of the total project. These reports are found in Appendix Q-2 and in Appendix Q-3.

DEVELOPMENTAL STUDIES
CAREER COUNSELING COMPONENT

STATEMENT OF PROBLEM

Programs of vocational/counseling typically involve the use of one or more vocational counseling tools. The YETP program or Youth Employment Training Program at Spartanburg Technical College is no exception. YETP is a component of the Developmental Studies Department. It is a special course of study designed to encourage disadvantaged youths to identify employability problems and to acquire new behaviors to solve these problems. YETP includes academic classes in math, reading, and language usage as well as the Adkins Life Skills Program (Appendix W) a packaged group experience designed to facilitate the development of career exploration skills, desirable work habits, and the development of job-finding skills. Staff involved in teaching the Adkins Life Skills program at Spartanburg Tech felt that an individual vocational counseling assessment device would be a useful adjunct to the Life Skills group experience. Criteria for the selection of the assessment device were that the chosen device would provide students with a conceptual framework for analyzing both their own career-related personality characteristics as well as the characteristics of various career environments. Two counseling tools that met these requirements were Holland's Self-Directed Search, Form E (SDS) (Appendix X) and Cognitive Style Mapping (CSM).

The Self- Directed Search, Form E is a vocational counseling inventory based on John L. Holland's (1973) theory of vocational choice. Holland's theory is a typology of six personality types and six model environments:

Realistic, Investigative, Artistic, Social, Enterprising, and Conventional. The types and environmental model are carefully defined. The theory is based on the assumption that people seek occupational environments that permit them to express their personalities. The results of the Form E inventory yield a two letter summary code which depicts the student's personality pattern according to his or her resemblance to the six personality types. Hence the summary code can be any combination of R I A S E C. The summary code is used to locate suitable codes in an accompanying occupational classification booklet, The Occupations Finder.

Cognitive Style Mapping is one of seven Educational Sciences developed by Dr. Joseph Hill (1975) at Oakland Community College, Michigan. Cognitive style is ascertained through the results of an inventory (Appendix C-1) and through a counseling interview. The map (Appendix C-2) itself is a profile which depicts the way or manner that a person obtains meaning from his or her world. The Cognitive Style Map is composed of scores (Appendix C-3) on twenty-eight elements (Appendix D) which are involved in the learning process. So the Cognitive Style Map as a career counseling tool lends itself to self analysis. Just as each individual has his or her cognitive style, Rose and Xenos (1975) have postulated that each occupation also has a characteristic cognitive style by design. The cognitive styling process can therefore also be used in conjunction with a booklet of the cognitive styles of occupations (Appendix U-1).

The purpose of this study was to compare Holland's Self-Directed Search, Form E with Cognitive Style Mapping for use as individual career counseling tools with the Adkins LIfe Skills Program with students in the YETP Program at Spartanburg Technical College. The concern was to determine

which instrument facilitated greater student satisfaction with the individual career counseling sessions. To date, there had been no previous studies to compare these two assessment devices.

GOALS AND OBJECTIVES

The goals and objectives of this project as stated in the original proposal were:

1. To provide inservice training on the SDS and CSM to the counselor.

2. To develop the structure of a program of career counseling based respectively on the SDS and CSM.

3. To identify the cognitive styles characteristic of the occupational fields commensurate with each curriculum department at Spartanburg Technical College.

4. To provide supportative counseling services with an emphasis on vocational exploration via the SDS and CSM to students participating in the project.

5. To study the effectiveness of the project as it would relate to implementation in other vocational/technical programs.

DESCRIPTION OF DESIGN AND PROCEDURES

The planning phase of the project began in fall, 1977 so that prior to initiation of the project, the counselor participated in workshops (Appendix F) on theory and application of CSM and the SDS. During the planning stage, the counselor, in consultation with the YETP instruction staff, also developed the structure of the counseling program (Appendix U-2). While the SDS, Form E is an established assessment device with a reading level appropriate for adults at the fourth, fifth, and sixth grade levels, there was no existing CSM Interest Inventory which was appropriate for the student population. The counselor and instructional staff revised a CSM inventory which had been developed by Dr. Tom Volk of Oakland Community College so that it was of an appropriate sixth grade reading level. The inventory is Appendix C-1. During the planning phase, the counselor also developed a booklet of the cognitive styles characteristic of the vocational/technical curriculum offered (Appendix U-2) at Spartanburg Tech and learned how to describe the cognitive style characteristic of any other job not offered in the TEC curriculum. Since the SDS is already accompanied by an Occupations Finder which describes occupations according to SDS code, the previously described procedure was not necessary for the SDS.

This was a study of seven weeks duration in Spring, 1978. The problem was to determine which individual counseling tool, CSM or the SDS, would promote greater student satisfaction as measured by response on

a semantic differential. (Appendix J-4)

Hypothesis: There will be a significant difference in the average degree of positive response on a student rating scale (semantic differential) the career counseling program between students who received their career counseling according to the Cognitive Style Map and those who received it according to Holland's Self-Directed Search, Form E.

IV: Method of Counseling

DV: Satisfaction (response on semantic differential)

Subjects: There were twenty-seven students enrolled in the YETP Program a component of the Developmental Studies Department at Spartanburg Technical College. Students ranged in age from 16-23 years. There were six males, eleven females, eleven blacks and six whites. All of the students enrolled in YETP for February 14, 1978 participated in the study.

Procedures:

Twenty-seven students, the total number of students participating in the YETP program for the period February 14 - April 28, 1978 were randomly assigned to experimental and control groups for Math, and English classes and for the Adkins Life Skills (Appendix W) program. The groups were stratified for age, sex, race, and reading scores on the Test of Adult Basic Education. Students signed a participation agreement (Appendix L) for the project.

On the first day of class the CSM Interest Inventory was adminsitered to the experimental group and the Self-Directed Search, Form E was administered to the control group. The counselor interpreted the inventories to the respective groups in group sessions on the second day of class. Individual interpretations of the instruments were required for the persons in both groups. These interpretations took place during the first

two weeks of class and were scheduled at the mutual convenience of the student and the counselor. Procedures for the interpretation of the Cognitive Style Map and the SDS are found in Appendices M-2 and M-3.

At the end of the seventh week quarter, a rating a scale, the semantic differential, was administered to determine student satisfaction with the two career counseling programs.

RESULTS

The hypothesis that there will be a significant difference in the average degree of positive response on a student rating scale (semantic differential) of the career counseling program between students who received their career counseling according to the Cognitive Style Map and those who received it according to Holland's Self-Directed Search, Form F was tested by a t-test of a difference between means of the experimental and control groups response on a semantic differential. There was no significant difference between means. Further analysis was done by determining Pearson correlation coefficients: correlation of degree of positive response on the semantic differential to group status. This relationship was shown to be negative, significant at the .06 level. These results suggest the following conclusions: group status has no effect on the student's degree of satisfaction with the career counseling sessions.

These data are reported in Table II, Appendix N-2.

EVALUATION

Evaluation of the project, as stated in the original proposal, was to include the previously described analysis of data as well as an evaluation by a third-party evaluation team. These steps were taken for this study.

While the results of the research has been described, it should be noted that the design that was originally described in the proposal was changed. This augmentation of the original proposal was the recommendation of a consultant with expertise in the area of research design, the proposal change was approved by the funding agency. The original proposal contained confounding and intervening variables and would have fostered cumbersome reporting of results. Therefore, the original proposal was divided into four small research studies: Career Counseling in Developmental Studies, Individualized Instruction in Developmental Studies, Career Counseling in Secretarial Science, and Individualized Instruction in Secretarial Science. So the proposal was changed for research purposes. However, the objectives of the original proposal were retained for use with the Cognitive Style Mapping aspects of career counseling and individualized instruction in Developmental and Secretarial Science.

At the end of the total project, or on May 11 and 12, 1978 a third-party evaluation team (Appendix P) with expertise in career counseling, Cognitive Style Mapping, and individualized instruction reviewed the project. Each of the three-member team had received a copy of the Objective

Analysis (Appendix B) for reading prior to arrival at Spartanburg Tech. Tney were instructed that their evaluation was to focus on the programatic implementation of CSM in counseling and instruction in the Developmental Studies and Secretarial Science Departments rather than on the research design. The team interviewed faculty, staff, and students involved in the project. The interview schedule is found in Appendix Q-1. Unfortunately, YETP students had already concluded their stay in the program at the time of the evaluation. The team, having read the original proposal and the objective analysis were assigned to interview, to observe, and to respond to a rating scale on the total project. The evaluators were also asked to make a synoptic statement on their observations of the total project. Those reports are found in Appendix Q-2 and in Appendix Q-3. In brief, the third-party evaluation comments relevant to the study of career counseling in the YETP program were 1. that the overall effectiveness of the CSM component was a 2.0 on a scale from 1.0 (Excellent) to 5.0 (Poor) and 2. that the Counselor-Instructor working relationships had been excellent. The evaluation team did recommend that the project improve the forms and mechanisms for presenting CSM information to students in a more understandable fashion. Also, the team recommended that the project incorporate the use of more demographic in counseling with students via CSM.

CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

In conclusion, none of the four studies evidenced findings of statistical significance pertinent to student achievement and satisfaction. These results tend to indicate an equal merit for both methods of instruction and for both counseling instruments used in each of the studies. However, these findings could also be attributed to a small sample number and to other research limitations.

While the results of these studies are not of statistical significance, plans are nevertheless operative to progressively implement CSM in counseling and instruction at Spartanburg Tech on a school-wide basis beginning fall, 1978. A two pronged foundation is at the basis of this decision:
1. Results of other studies have indicated that the CSM theory is more than supposition or fantasy. (Sanders, 1977) 2. There is a great deal of interest, enthusiasm, and support for CSM at Spartanburg Tech.

Plans for the 1978-79 year are to implement the mapping in the Secretarial Science and Developmental Studies Departments as well as in seven other academic departments. For this first implementation year, the map will be used as specified in Appendix R, in academic and career counseling and as an awareness device in helping students and instructors understand student learning styles. The project will be implemented by the regular counselors and instructors at Spartanburg Tech.

The project developer will devote one-third time to providing inservice training and coordinating efforts of other personnel. While the counselor

and the secretarial positions under Voc Ed funding were not retained by school for 1978-79, it is felt that after having a year of research, field-testing, and refinement of the CSM concept, futher implementation will be enhanced by incorporating CSM into the normal functions of the College while allowing for some release time for one person to nurture and provide coordination for the project.

The experiences of this 1977-78 year of research and the consequential results have meant that inservice training for faculty and staff for 1978-79 will be more in depth than was the training for 1977-78. In addition, efforts will be made to establish a format for the map that will promote easier understanding of CSM concepts by the students.

It is felt that particular benefits of the 1977-78 funding under the Office of Vocational Education outside of the research findings have been: 1. the field-testing of the CSM concept, and 2. the field-training of decentralized counseling at Spartanburg Tech. In reference to decentralization of counseling services, the results of a survey taken of Secretarial Science students in November, 1977 indicate a very positive reaction to a counselor specifically at work in their department.

Throughout the course of the year, this project has had publicity in several state educational newsletters (Appendix V). Approximately 35 visitors from technical and community colleges in North and South Carolina reviewed the project. In addition, the staff made presentations for inservice training at two other Technical Colleges. There is a high level of interest for CSM in the State of South Carolina. Spartanburg Tech has tenative plans for a state-wide workshop on CSM in the 1978-79 year.

End products outlined in the original proposal for presentation to the State Office of Vocational Education were curriculum revisions, a

report on the structure of the career counseling program, and a report for specific jobs. This information is respectively found in Appendices T, U-1, and U-2.

APPENDIX-A

REFERENCES

Bloom, B. S. Mastery for Learning.
UCLA Evaluation Comment,
1968, I, No. 2.

Hill, J. E. and Setz, B. D.
Educational Sciences at Oakland Community College,
Bloomfield Hills: Oakland Community College Press,
1970.

Holland, J. L. Making Vocational Choices:
A Theory of Careers: Englewood Cliffs, N. Y.:
Prentice Hall, Inc., 1973.

Kogan, Nathan. "Educational Implications of Cognitive Styles"
Psychology and Educational Practice.
Illinois: Scott, Foresman and Company.
1971.

Nelson, K. Lecture at Mountainview Community College,
Dallas, Texas, 1978.

Nunney, D. N. Educational Cognitive Style: A Basis for
Personalizing Instruction. The Educational Scientist,
1975, Vol. 1., No. 1.

Rose, B. J. and Xenos C. Utilizing the Educational
Sciences Cognitive Style Matching Concepts of the
Student, Teacher Program Area, and Occupation to Advise
and Counsel Students in Vocational/Career Areas.
Bloomfield Hills, Michigan: Oakland Community College,
1975

Sanders, B. F. Cognitive Style and Educational Technology.
The Journal: Technological Horizons in Education,
1977, Vol. 4, No. 7.

APPENDIX B

OBJECTIVE ANALYSIS
PHASE I

April 1, 1977 - June 30, 1977

Objective 1:
TO IDENTIFY A VOCATIONAL/TECHNICAL CURRICULUM AREA TO BE USED IN THE PROJECT.

Results: Two curricula were identified for the project: Secretarial Science and Developmental Studies.

Procedures: This selection was made by surveying all Spartanburg Tech curricula and assessing each on the basis of several criteria that the CSM Advisory Committee had established as indicators for cohesiveness with the grant objectives. The indicators were: 1) the number of delivery systems available, 2) the number of freshmen expected in the fall, 3) the number of full-time faculty teaching in the department, 4) the department's willingness to participate in the project, and 5) the number of options available to students entering the curriculum. After narrowing the curricula to four, the Advisory Committee selected Secretarial Science and Developmental Studies. The four curricula were then placed in a priority order which was subject to the approval of the State Department of Vocational Education. This approval was received.

Problems and Solutions: A problem was the lack of adequately staffed curricula which would be suited for the project. Out of 30 curricula, only four had adequate staffing to accommodate the experimental and control groups.

Objective 2:
TO SELECT A PROJECT STAFF.

Results: While staff were to be hired in April, Project Developer, Jane Reece was hired July 1, and the Counselor, Ken Barnhill and the Secretary Teresa Lankford, were hired August 1.

Procedures: The procedures used for staff selection were standard policies of the College's personnel office.

Problems and Solutions: Complications arising from receiving position approval from the State Personnel Office were impediments to this objective. An Advisory Committee administered the project during Phase I. While a lack of project staff did limit the achievement of several objectives during Phase I, they were accomplished in Phase II.

Objective 3:
TO PROVIDE INSERVICE TRAINING TO THE PROJECT STAFF.

Results: Inservice training was begun at the inception of the project and has continued throughout the project. Inservice training has included visiting other colleges and schools using CSM, attending CSM workshops and conferences, and having the availability of literature and audio-visual materials on CSM. Of necessity, two visits to CSM projects were made prior to the hiring of project staff. Advisory Committee members visited projects at Oakland Community College, Michigan, and Polk Community College, Florida. Fortunately this committee included personnel who were later to be chosen as the project developer and instructors. After the selection of staff, visitations were made to Mountainview Community College and Cedar Valley Community College, Dallas, Texas, and to the Adult Education Center, Niagara Falls, New York. The staff made local visits to projects involving adult learning, but not via CSM, at Greenville Technical College, Greenville, S. C., and Piedmont Technical College, Greenwood, S.C. Staff attended two conferences at Mountainview in Dallas and one conference in Charlotte, N. C.

Inservice training sessions held at Spartanburg Technical College included a two-day workshop involving empirical mapping and prescription writing held by Dr. Tom Volk, Oakland Community College. The staff also viewed a video-tape presentation by Dr. Joe Hill, originator of CSM.

During the project the Project Developer prepared a file of literature on CSM which was available in each curriculum department and in the project office. The project purchased 24 microfilmed dissertations on CSM, a bibliography on the Witkin CSM model, and encouraged the order of CSM journals by the College library.

In addition, the project developer and the counselor held inservice training for the Student Services staff and the Allied Health Division.

Procedures: The procedure used to develop inservice training has been to evaluate the training needs of the staff according to their expressed needs and to look for options to meet these needs. A minimum of one long distance trip and one local trip has been available to each faculty and staff.

Problems and Solutions: There were no significant problems associated with this objective.

Objective 4:
TO IDENTIFY AN INSTRUMENT FOR THE MEASUREMENT OF LEARNING STYLES AND REFINE IT FOR USE IN THE PROJECT.

Results: A pencil and paper preference inventory was written by Spartanburg Tech faculty and staff with consultation from Tom Volk, Oakland Community College. It has a 6.0 reading level, requires approximately 45 minutes to administer, and can be hand-scored. The inventory is worded so that it is culturally suited for Spartanburg Technical College students.

Procedures: During Phase I, Advisory Committee Members took both a performance-based and preference inventory. It was felt that the performance assessment was too lengthy and that both assessments had too difficult a reading level. With these considerations in mind, the current inventory was written. At present there are efforts to design an inventory for non-readers.

Problems and Solutions: There were no significant problems associated with this objective.

Objective 5:
TO EVALUATE PRESENT DELIVERY SYSTEMS AND IDENTIFY MATERIALS NEEDED TO IMPLEMENT ADDITIONAL DELIVERY SYSTEMS.

Results: It should be noted that two different approaches were taken in Objective 5 and for all other curriculum development objectives in the project. In Developmental Studies, students were actually taught through five different delivery systems according to their cognitive styles: programmed text, audio-visuals (cassettes, VTR), faculty-lead-discussion, peer tutoring, and independent study (the IMTS system.) In Secretarial Science the separation of the curriculum into different delivery systems was not so delineated; a multi-media self-paced curriculum was used for all students.

Department heads in Developmental and in Secretarial made an indepth study of the instructional materials available in their departments and identified materials needed in order to respond to the cognitive styles of a greater number of students.

Procedures: This was done by a survey of curriculum materials, finding out what was available, and ordering other materials to meet a wider variety of needs.

Problems and Solutions: T'ere were no significant problems associated with this objective.

Objective 6:
TO IDENTIFY THE TEACHING STYLES OF STAFF DIRECTLY INVOLVED WITH THE PROJECT.

Results: After consultation with Dr. Derek Nunney, Project Consultant, it was determined that the institution is not advanced enough to undertake the identification of counseling, administrative, and teaching styles at the present time. The determination of counseling, administrative, and teaching styles is a body of knowledge which is separate from, but based on the cognitive style of an individual.

Problems and Solutions: The problem associated with this objective is that it was too advanced a concept to be undertaken during the first project year. Since the chance of attaining this objective was negligible, it was thrown out.

Objective 7:
TO DEVELOP A COUNSELING PROCEDURE FOR MATCHING LEARNING STYLES WITH INSTRUCTIONAL DELIVERY SYSTEM.

Results: This objective had to do with prescription writing. It was accomplished through inservice training.

Procedures: Based on an assessment of student learning strengths and weaknesses, recommendations were made for instructional strategies which would capitalize on strengths and help the students to overcome weakenesses.

Problems and Solutions: There were no significant problems associated with this objective.

Objective 8:
TO SET UP A PROCESS FOR EVALUATING CURRICULA AND CAREER INFORMATION ACCORDING TO COGNITIVE STYLE.

Procedures: The counselor was aware of students' cognitive styles and also of the cognitive styles commensurate with the desire to work with various sorts of multi-media materials in career exploration. Based on this knowledge, the counselor would recommend printed or audio-visual career exploratory material.

Problems and Solutions: There were no significant problems associated with this objective.

Objective 9:
TO DEVELOP THE STRUCTURE OF A PROGRAM OF CAREER COUNSELING BASED ON COGNITIVE STYLE.

Secretarial Science

Results: Due to lack of staffing this objective was not accomplished by June 30; however, it was completed by September 1. The structure of the career counseling programs were different for the two departments.

In Secretarial Science where students participated in the project for a total of nine months, the objectives for career counseling were as follows:

1. Each student participated in one mandatory interpretation of the CSM Interest Inventory.

2. Each student had the opportunity to participate in a monthly voluntary group counseling session which included viewing films, film-strips, and slide tapes on career exploration, secretarial careers and job-finding skills. Six such sessions were held.

3. Each student received orientation to the school's Career Resource Center and Placement Office.

4. Each student had the opportunity to receive information on job areas in the Secretarial Science field: clerk typist, medical and legal secretary, business secretary, receptionist, and administrative assistant.

Procedures: During the initial instrument interpretation, the counselor and the student discussed the student's cognitive style in relationship to the student's career goals as a secretary. For example, are the elements in the student's cognitive style commensurate with those needed for the job environment as a secretary? If not, is the student able to compensate for these? In addition, the student and counselor discussed the student's particular job goals in the secretarial field: clerk typist, medical secretary, etc. The procedures used in the group sessions were to present a film, slide-tape or other group discussion stimulus and to discuss the careers shown as related to cognitive style. For example, in a film regarding secretatial careers the cognitive elements in each career were discussed. The group counseling session also included a session on interviewing skills. Career information materials purchased through the project were housed in the College's Career Resource Center. It is felt that this would encourage the students to use other materials in the Center. Students also received an orientation to the Job Placement Office.

Problems and Solutions: A problem associated with this objective was the difficulty in scheduling the career counseling sessions. Due to hectic schedules, counseling could not be scheduled on class time. So they were scheduled during the monthly student activity period. Since many students also had club meetings during that time, attendance was sometimes not at maximum. Also, six such sessions were held rather than nine. It is recommended that the career counseling activities, if continued, become part of the personal development or human relations class.

Developmental Studies

Results: In the Developmental Studies Department, students participated in the project for an eleven week project. Three groups of students participated. The objectives for the career counseling program were as follows:

1. Each student participated in one mandatory interpretation of the CSM Interest Inventory.
2. Each student participated in a group counseling session where the film "Work: What's It All About" was presented.
3. Each student received an orientation to the College's Career Resource Center.
4. Each student had the opportunity to receive information on the curriculum department at Spartanburg Technical College.

Procedures: During the initial instrument interpretation, the counselor and the student discussed the student's cognitive style in relationship to the student's career goals. The group counseling session was held during class time. Various career exemplified in the film were discussed according to cognitive style. Developmental students were also encouraged to use materials in the College's Career Resource Center. Students interested in applying to Spartanburg Tech were referred to the Admissions Office.

Problems and Solutions: During the first two quarters there was a problem in scheduling the individual counseling sessions. Developmental Students were found to have irregular attendance. The third group of students in the project were receiving stipends for class attendance so that scheduling interviews was no problem.

OBJECTIVE ANALYSIS
PHASE II

July 1, 1977 - September 29, 1977

Objective 1:
TO PURCHASE AND/OR DEVELOP INSTRUCTIONAL MATERIALS AND EQUIPMENT FOR DELIVERY SYSTEMS IDENTIFIED IN PHASE I.

Results: Instructional equipment and materials purchased were as follows:

Developmental Studies

VTR Equipment (recorder, monitor, mike and cart.) This equipment is being used with the KET GED series and with video-tapes which have been made by instructors here at Spartanburg Technical College. This equipment has also been used extensively with Adkins.

Two Wallensak dual track recorders have been used for auditory testing of the IOWA test with visually impaired and blind students.

Ninety blank video-tapes have been used for making tapes in the areas of Math, English, and Reading and (2) for recording inservice training.

Tape cabinet has been used to store auditory tapes.

Kaleidscope readers are high interest readers written on a variety of levels (2 - 9.) They have been used to teach both vocabulary and comprehension. The comprehension checks utilize the various modalities of inference.

Be a Better Reader- These books range from grade 4 through grade 12. Specific reading skills are taught and in addition content in social studies, science, and literature is taught. While they are geared to a major TVL, the different modalities of inference are employed.

Twenty VTR presentations were developed for language usage and math in Developmental Studies. Fifteen more tapes will be completed by the end of the project. In addition, a number of written materials were developed. However, these materials were not developed in the Phase I time period.

Secretarial Science

VTR equipment (recorder, monitor, mike and cart.) This equipment is used to video speakers, and will be used to video certain lecture classes.

Eighteen blank video-tapes are being used to video lectures.

Two sets of 40 Super 8 film on Gregg Shorthand Theory. These film are used as individualized visual instruction for Beginning Gregg Shorthand Theory. Also, they are used for review of Gregg Theory in remedial brush-up shorthand classes.

Four Fairchild rear-view projectors for Super 8 films. These machines are used for the Beginning Gregg Shorthand Theory Super 8 film listed above.

In Secretarial Science, additional materials were not developed. Due to circumstances beyond the control of this project, instructors had not been selected during the project period when release time was funded for them to develop materials. The Department of Vocational Education sanctioned a request that the release time funds be used to purchase additional equipment and supplies for the project. While plans were in effect to develop curriculum materials throughout the project year, this decision was negated for reasons discussed in the "problem" section. However, it is felt that the additonal purchases of materials and equipment made during the project year did result in the availability of a variety of instructional materials to use with students who possess varying cognitive styles.

Procedures: The procedures used take the results of Objective 5, Phase I and to search equipment and supply catalogues for equipment and materials to meet the specified needs.

Problems and Solutions: As previously discussed, one problem related to materials development was that faculty had not been selected during the time when release time funds were available. Instead, release time funds were used to purchase additional equipment and supplies. Plans to continue curriculum development through the project year were negated for Secretarial Science during the project year. However, it is speculated that a large amount of curriculum development (other than through purchases) via cognitive style would have been a mistake during the first project year. It usually takes about six months for faculty to become comfortable with the use of CSM to facilitate instructions. Making additional demands would have been an unrealistic requirement.

Objective 2:
TO STRUCTURE EACH DELIVERY SYSTEM WITHIN THE CHOSEN CURRICULUM.

Developmental Studies

Results: Developmental math and language skills were taught via five different delivery systems according to cognitive styles: programmed text, audio-visuals, peer tutoring, faculty-lead seminar, and independent study. (actually a combination of all four approaches.)

Procedures: At the inception of this project, the curriculum used in the Developmental Studies Department was the Individualized Manpower Training System (IMTS), a multi-media, self-paced, highly structured learning experience. In the IMTS, students are tested in reading, math, and language with the Tests of Adult Basic Education (TABE.) The TABE scores include an analysis of learning difficulties which is used in prescribing instruction. That is, does the math student need help with fractions, percent, or algebra? Does the English student need help with punctuation or understanding nouns and pronouns? An IMTS prescription catalogue is used to recommend multi-media instructional materials for use with the analyzed learning needs of the students. The IMTS system is based on learning modules of varying lengths.

While the instructors found the analysis of learning difficulties and the basic instructional units of instruction of IMTS to be helpful, it was felt that the system itself, being self-paced, individualized, and highly structured, was probably effective only with students of certain cognitive styles. Changes were made in the IMTS system to adapt it for students with vaying cognitive styles. Two basic packages of curriculum materials (cassettes, filmstrips.) These two packages are the basis for the firve different delivery systems: 1. programmed text (written,) 2. audio-visual (VTR, cassettes, filmstrips,) 3. peer tutoring (a supplement to written or audio-visual,) 4. faculty lead seminar (also a supplement) and 5. independent study (the IMTS system.)

Problems and Solutions: There were no significant problems associated with this objective.

Secretarial Science

Results: The Secretarial Science Department added materials and equipment in order to teach students according to their cognitive styles but they did not due to the nature of their curriculum, separate the curriculum into separate delivery systems.

Procedures: The procedures used were described under Objective 5, Phase I.

Problems and Solutions: Secretarial Science is a skills oriented program with implied goals of preparing students for a specific career field, and the skills required for success in the curriculum must approximate those needed for job success. There is an inherent need for a curriculum which requires learning as does work on a secretarial job, by hearing as well as seeing and which

also requires independent work, structured thinking, and several other cognitive style elements. Therefore, the Secretarial Science Department chose to use their existing curriculum and to supplement it with additional audio-visual materials. Within this framework the map was used as a vehicle to help the student to adjust to the curriculum. Therefore, rather than dividing the curriculum into five separate delivery systems, one multi-media system was used. This system has flexability so that the instructor can work with each student according to their cognitive style. While this system was workable, the instructors found through their work with cognitive styling, that some students were unable to perform well with self-paced instruction. Therefore, the curriculum will be altered in Fall, 1978 to include both self-paced and lecture methods.

Objective 3:
TO ASSESS AND INTERPRET THE LEARNING STYLES OF ALL STUDENTS IN THE PROJECT CURRICULUM.

Results: Cognitive styles of all students were assessed and interpretations were made by the second week of school.

Procedures: All students took the CSM Interest Inventory on or before the first day of school. The inventories were hand-scored. All students received an interpretation of the results by the counselor. During this interview the results of the map were empir-cally confirmed by the counselor. Secretarial Science students were "mapped" at the beginning of the school year only. Three groups of Developmental Studies students were "mapped." One group was done each quarter. Interpretations of the accuracy of the map continued throughout the year as the counselor and the students became better acquainted with each other. In order to facilitate the understanding of student cognitive styles, the counselor and the instructors held periodic conferences.

Problems and Solutions: There were no significant problems associated with this objective.

Objective 4:
TO IDENTIFY THE LEARNING STYLES APPROPRIATE TO SPECIFICALLY IDENTIFIED JOBS WITHIN THE CURRICULUM AREA.

Secretarial Science

Results: The purpose of this objective in the Secretarial Science Department was to determine the cognitive style elements associated with success in various secretarial jobs: clerk typist, medical and legal secretary, business secretary, receptionist, and administrative assistant. With the method used, no significant differences in cognitive style elements were found.

Procedures: The counselor, being knowledgeable in cognitive styling, interviewed the department head and attempted to discern the cognitive style elements associated with success in each job.

Problems and Solutions: No significant differences were found with this method. It may be that significant differences can be found through scientific research.

Developmental Studies

Results: Maps associated with success in each of Spartanburg Tech's 24 curriculum departments and their related career fields were generated.

Procedures: The counselor being knowledgable in cognitive styling interviewed each department head and attempted to discern the cognitive style elements associated with success in each curriculum and career field.

Problems and Solutions: There were no significant problems associated with this objective.

Objective 5:
TO BEGIN SAMPLING PROCEDURES FOR EXPERIMENTAL AND CONTROL GROUPS.

Results: Sampling procedures were carried out for Secretarial Science at the beginning of the school year. They were carried out for Developmental Studies at the beginning of each quarter.

Procedures: At the inception of the project a research consultant was hired. Through his guidance it was found that matched pairing, as specified in the original proposal, would not be an experimentally sound procedure with the small number of students. Therefore, a post-test only design with randomized samples was chosen. In both programs it was necessary to choose the first student applicants for the project. Student names were drawn from a hat for the experimental and control groups. The groups were stratified according to age, sex, race, and admissions scores. In Developmental Studies stratification for number of hours in math and language was also done.

Problems and Solutions: There were no significant problems associated with this objective.

Objective 6:
TO ASSESS COUNSELING AND ADMINISTRATIVE STYLES OF STAFF DIRECTLY INVOLVED.

Results: After consultation with Dr. Derek Nunney, project consultant, it was determined that the institution is not advanced enough to undertake the identification of counseling, administrative, and teaching styles at the present time. The determination of counseling administrative, and teaching styles is a body of knowledge which is separate from but based on the cognitive style of an individual.

Problems and Solutions: The problem associated with this objective is that it was too advanced a concept to be undertaken during the first project year. Since the chance of attaining this objective was negligible, it was thrown out.

OBJECTIVE ANALYSIS
PHASE III

October 1, 1977 - June 30, 1978

Objective 1:
TO TEST AND PLACE STUDENTS IN SPECIFIC DELIVERY SYSTEMS APPROPRIATE TO THEIR LEARNING STYLES.

Results: Student cognitive styles were diagnosed as previously described, on or before the first day of class. At that time, an educational prescription, based on cognitive style, was determined. This included a recommendation for an optimal delivery system to be used with each student as well as suggestions to assist the faculty member in better understanding and relating to the individual learning needs of each student.

Procedures: On the basis of understanding the students cognitive styles and also understanding the cognitive style, elements needed for success with the instructional methods used in each curriculum, prescriptions were written. In Developmental Studies, specific delivery systems (programmed text, audio-visual, etc.) were recommended. While these were recommended in Secretarial, they were not used. In both departments the prescriptions included suggestions or recommendations for helping students learn more effectively.

Problems and Solutions: One problem associated with this objective stemmed from the fact that the procedure used was to have the counselor to write the prescriptions. The result was that faculty tended to rely too much on the use of the prescriptions rather than on their own understanding of the map. It is felt that this problem can be avoided by having prescription writing become an instructional activity. This would help the faculty to become more comfortable with the use of the map elements in understanding student learning.

Objective 2:
TO IMPLEMENT EACH INSTRUCTIONAL DELIVERY SYSTEM WITHIN THE CURRICULUM.

Results: Five delivery systems were used in Developmental Studies: programmed text, audio-visual, peer tutorial, faculty-lead discussion, and independent study. In the Secretarial Science Department, a self-paced, multi-media curriculum was used. In both Departments, CSM was used to help the student and the instructors to better understand student learning strengths and weaknesses and to help the students learn in the most effective, efficient manner possible.

Procedures: The procedure was to use the map to focus on the student's strengths as a learner and to initiate his or her instruction based on these strengths. The map was also used to discern learning weaknesses. The isntructors then tried to help the students to overcome the weaknesses.

Problems and Solutions: One problem that surfaced was that the objectives of the grant overemphasized the role of CSM in prescribing alternative delivery systems of instruction. While this is a viable function the staff, over the course of the year, began to see the map as a device to provide information about the student as a learner.

Objective 3:

TO PROVIDE SUPPORTIVE COUNSELING SERVICES, WITH AN EMPHASIS ON JOB-GOAL EXPLORATION AND JOB SELECTION ACCORDING TO LEARNING STYLE TO STUDENTS PARTICIPATING IN THE PROJECT.

Results: The counselor provided the services specified in the objectives for the career counseling program as addressed in Objective 9, Phase I. In Secretarial Scince the emphasis was on job-goal exploration and job-goal selection while in Developmental Studies the emphasis was on curriculum selection.

Procedures: The procedures are outlined under Objective 9, Phase I. Individual and group counseling sessions were structured. The counselor was available for walk-in counseling.

Problems and Solutions: Students in Developmental Studies tended to come in more often for voluntary counseling. It could be speculated that the reason for this is that the counselor's office was located in closer physical distance to the Developmental Department.

Objective 4:

TO STUDY THE EFFECTIVENESS OF THE PILOT PROGRAM AS IT WOULD RELATE TO IMPLEMENTATION IN OTHER VOCATIONAL/TECHNICAL PROGRAMS.

Results: The study of the program activites has been done by several activites: 1. interviews (with a standard format) with students, 2. assessment of instructor perceptions through their responses on a rating scale, 3. an experimental assessment through data analysis prescribed by the research design, 4. a survey taken to determine the number of curriculum departments interested in using CSM next year, and 5 this evaluation. Results of the student interviews and assessment of faculty perceptions were highly favorable and appear in this information package. The survey taken to assess interest in using CSM next year revealed that 14 out of the schools 24 departments would like to participate. Final results of the data analysis are not yet available.

Procedures: Student perceptions of CSM were assessed by randomly selecting four students from the experimental group and interviewing them according to a standard format whereby they were to react to questions on a rating scale with the number one indicating strong agreement and number five indicating strong disagreement. The questions were aimed at the students' reactions to CSM itself rather than to the operation of the program. Students showed an overall positive reaction to the CSM in counseling and in the instructional program.

The procedure used for the evaluation of instructor perceptions of CSM were the same as used for the students. However, the instructors responded on a written questionnaire. It should be noted that each of the instructors said that they would favor using CSM next year if the option were available and that they would recommend the use of CSM to instructors in other vocational/technical curricula. The school-wide faculty survey was administered on a standard form. Data have been collected and are in the process of being analyzed.

Problems and Solutions: There are no significant problems associated with this objective.

Objective 5:
TO DETERMINE SPECIFIC OBJECTIVES AND PROCEDURES FOR PHASE IV.

Results: Below is an outlined plan for the futher implementation of CSM throughout the school. This plan is submitted to the Fund for the Improvement of Postsecondary Education. The project is awaiting funding notification. If the grant is not funded, a less extensive project will be implemented by the school.

STATEMENT OF INTENDED OUTCOMES

1978 - 79 EMPHASIS: CSM TO FACILITATE LEARNING HOW TO LEARN AND TO FACILITATE ACADEMIC COUNSELING.

Goal: The purpose of the first year is to provide for an introduction to the basic concepts of Cognitive Style Mapping for faculty and staff and to implement the use of CSM as a conceptual framework to help students, faculty and staff to understand student learning behaviors and to capitalize on student learning strengths in their classroom performance.

Objective 1:

In August of 1978, faculty, administrators, and counselors who work in ten (approximately 650 students) of the College's twenty-eight curriculum departments will receive inservice on the general concepts involved in Cognitive Style Mapping and will learn how to interpret the CSM Interest Inventory as well as how to prescribe individualized programs of study based on a student's Cognitive Style Map.

Objective 2:

Students involved in the ten departments will take the CSM Interest Inventory during the first week of school and will receive a group interretation (by a counselor) along with an individual copy of his or her CSM profile by the end of the second week of school. Students experiencing difficulty in the classroom will have an opportunity for an individual follow-up during the first six weeks of school with a counselor.

Objective 3:

Each instructor participating in the project will receive by the end of the second week of school, a copy of his or her student's CSM profile along with a composite group map of the students in his or her department.

Objective 4:

Each instructor participating in the project will use the student's Cognitive Style Maps to facilitate classroom learning and will assist the student in using CSM to optimize classroom learning.

Objective 5:

In the Spring of 1979, faculty and staff will receive inservice training on the use of CSM in curriculum development.

1979 - 80 EMPHASIS: EXPANSION OF PROJECT AND THE USE OF CSM IN CURRICULUM DEVELOPMENT.

Goal: The purpose of the second year is to expand the project into three additional curriculum departments (i.e. to accomplish all of the first year objectives in three additional departments, approximately 350 students,) to continue these objectives in the original ten departments, and to add the use of CSM in curriculum development in the ten original departments.

Objective 1:
By December 1, 1979, faculty, administrators, and counselors in the ten original departments will receive inservice training methods of developing multi-media instructional materials.

Objective 2:
Students will have the option of interpretation of their CSM profiles via a written guide, audio-tape, slide-tape, and video-tape as well as individual and group counseling.

Objective 3:
Student in the departments participating during the 1978-79 year will be taught how to discern the cognitive style needed for success in using the various instructional materials that are available in their classes. For example, instructors using seminars, audio-tapes, and programmed texts will teach the student the cognitive styles needed for success in learning via each of these three methods.

1980 - 81 EMPHASIS: EXPANSION OF PROJECT AND THE ADDITION OF COUNSELING, ADMINISTRATIVE, AND TEACHING STYLES.

Goal: The purpose of the third year is to expand the project into three additional curriculum departments (i.e. to accomplish all of the first year objectives in three additional department, approximately 350 students), to accomplish all of the 1978-79 objectives for departments beginning involvement in 1979-80 and to add the use of counseling, administrative and teaching styles for the ten departments beginning involvement during 1978-79.

Objective 1:
By August 1980, faculty, administrators, and counselors will receive inservice training to determine their counseling, administrative, and teaching styles.

Objective 2:
Students will receive a student guide which will describe the teaching methods of each instructor in his or her department. (Example: Jane Doe, Business Administration, lecture, seminars, programmed text; John Doe, Engineering, lecture, .ide tapes.)

Inherent in these objectives is the assumption that as each new curriculum department initiates CSM involvement, they will begin at the Objectives listed for 1978-79. All original inservices will be video-taped.

Procedures: These objectives take the product of the work of an ad hoc committee which included representation from each academic division in the school as well as from the student services counseling staff.

Problems and Solutions: Hopefully, there are no problems associated with this plan.

APPENDIX C-1

COGNITIVE STYLE MAPPING INVENTORY

The purpose of this inventory is to give you information on how you prefer to learn. Your Cognitive Style Map will be developed from your responses to this inventory and should provide valuable information in determining the manner in which you prefer to learn. This inventory is not a test. It cannot be passed or failed and there are no right or wrong answers. Remember, your map will only be as accurate as the responses you give. The results from your map will provide a picture of how you prefer to learn. Your instructors will use this information to help you perform better in the classroom. So, relax and enjoy this adventure in self-understanding.

IN ORDER TO DETERMINE YOUR COGNITIVE STYLE
YOU WILL NEED THE FOLLOWING:

1. A Cognitive Style Mapping Inventory.
2. A tally sheet.
3. Something to write with.
4. Approximately 45-60 minutes of time.

HOW TO COMPLETE THIS INVENTORY

1. Read each statement carefully.
2. There are eight sets of statements and each set contains 28 statements.
3. After reading a statement decide how it pertains to you: "Usually," "Sometimes," or "Rarely." On the tally sheet, find the line that corresponds to the statement that you are on and place a tally mark ( ) in the column marked "Usually," "Sometimes," or "Rarely." For example, your response to statement 1 should be placed in appropriate column on line 1 of your tally sheet. Your response to statement 2 should be placed in the appropriate column on line 2 of your tally sheet.
4. Follow this procedure until the inventory is completed. Be sure to respond to each statement.

PLEASE MARK ONLY ON THE TALLY SHEET AND NOT ON THE INVENTORY!

BEGIN AT THE TOP OF PAGE 1 AND AT THE TOP OF THE TALLY SHEET!

1. I UNDERSTAND BETTER WHAT A PERSON MEANS WHEN HE SPEAKS TO ME THAN WHEN HE WRITES TO ME.
2. I FIND IT EASY TO LISTEN TO NUMBERS AND TO ADD THEM IN MY HEAD.
3. AFTER I TELL SOMEONE HOW TO DO SOMETHING, I WOULD READ HIS NOTES TO BE CERTAIN THEY ARE CORRECT.
4. I SOLVE MATH PROBLEMS FASTER IF I USE PAPER AND PENCIL.
5. I CAN TELL IF SOMETHING IS WRONG WITH AN ENGINE BY LISTENING TO IT RUN.
6. I CAN TELL "WHAT'S FOR DINNER" BY THE SMELL WHEN I ENTER THE HOUSE.
7. I CAN EASILY TELL IF MILK IS SOUR BY TASTING IT.
8. I CAN FEEL THE DIFFERENCE BETWEEN LEATHER AND METAL BY SLIDING MY HAND OVER IT.
9. I PREFER TO READ BOOKS WHICH HAVE PICTURES OR DRAWINGS IN THEM.
10. I CAN CATCH A BALL THAT HAS BEEN HIT OR THROWN.
11. MY FRIENDS TELL ME THAT I AM UNDERSTANDING.
12. I ENJOY LOOKING AT PRETTY THINGS.
13. THE VALUES OF OUR SOCIETY ARE GOOD FOR EVERYONE.
14. I CAN IMITATE SOMEONE ELSE BEFORE A GROUP WELL ENOUGH FOR THEM TO KNOW WHO IT IS.
15. I BLUSH AT TIMES WHEN MANY OTHERS DO NOT.
16. WHEN PREPARING FOR MY DRIVERS ROAD TEST, I AM WILLING TO PRACTICE UNTIL I LEARN TO DRIVE WELL.
17. I WOULD WAIT TO BE INTRODUCED TO A FAMOUS PERSON RATHER THAN INTRODUCE MYSELF IMMEDIATELY.
18. I CAN PREDICT MY RESPONSES IN MANY SITUATIONS.
19. I CAN PERSUADE CHILDREN TO DO WHAT THEY SHOULD.
20. I KNOW HOW LONG IT WILL TAKE TO COMPLETE MOST TASKS.
21. I LEARN A SUBJECT BETTER WHEN I CAN DISCUSS IT WITH MY FRIENDS.
22. BEFORE VOTING IN A SCHOOL ELECTION, I TALK ABOUT THE CANDIDATES WITH MY FAMILY.
23. I MAKE MY OWN POLITICAL CHOICES.
24. I WORK BEST IN AN ORGANIZED SITUATION.
25. I UNDERSTAND AN IDEA BETTER IF I STUDY HOW IT DIFFERS FORM OTHER TOPICS.
26. I WOULD FIND IT INTERESTING TO DISCOVER HOW PEOPLE BEHAVE BY FIGURING OUT WHAT MAKES THEM TICK.
27. I PREFER TO KNOW ALL THE FACTS BEFORE I REACH A DECISION.
28. I ENJOY GAMES AND PUZZLES IN WHICH THE SOLUTION CAN BE FIGURED OUT FROM THE RULES.

RETURN TO THE TOP OF THE NEXT PAGE AND THE TALLY SHEET AND FOLLOW THE SAME PROCEDURE AS BEFORE!

1. I DO BETTER ON A TEST IF IT IS ABOUT INFORMATION I HAVE HEARD RATHER THAN READ.
2. I USE NUMBERS I KNOW ABOUT TO PROVE MY POINT WHEN TALKING TO OTHERS.
3. IT IS EASIER FOR ME TO EXPLAIN THINGS IN WRITING THAN BY TALKING ABOUT THEM.
4. I DO BEST ON WRITTEN MATHEMATICS TESTS.
5. THE TONE OF A SPEAKER'S VOICE ADDS MEANING TO HIS WORDS.
6. I CAN DISTINGUISH FRESH FRUIT FROM STALE FRUIT BY THE SMELL.
7. WHEN EATING, I USE DIFFERENT SPICES UNTIL THE FOOD TASTES "RIGHT."
8. I CAN EASILY BUTTON MY COAT IN THE DARK.
9. I CAN EASILY TELL IF A PICTURE HANGING ON THE WALL IS STRAIGHT.
10. I HAVE BEEN TOLD THAT I AM A GOOD FRISBEE PLAYER.
11. I "FEEL" THE EMOTIONS OF OTHERS AS THEY DO.
12. I LIKE THE OUTSIDE OF BUILDING TO BE AS BEAUTIFUL AS THE INSIDE.
13. I TRY TO LIVE MY LIFE AS IF THE WAY I WAS TAUGHT WERE RIGHT.
14. I AM A GOOD ACTOR OR ACTRESS.
15. I USE FACIAL EXPRESSIONS TO SHOW HOW I FEEL.
16. I AM BETTER COORDINATED THAN MOST PEOPLE.
17. I KNOW ON WHOM I CAN PLAY A PRACTICAL JOKE.
18. I KNOW HOW WELL I WILL DO WHEN I AM FACED WITH A NEW SITUATION.
19. IN GROUP DISCUSSIONS, I CAN BE THE ONE WHO PERSUADES THE GROUP TO REACH A DECISION.
20. I KNOW EXACTLY HOW MANY MINUTES IT TAKES ME TO GO PLACES THAT I GO A LOT.
21. I ENJOY AN ACTIVITY MORE IF MY FRIENDS DO IT WITH ME.
22. FAMILY VALUES SHOULD HAVE LASTING EFFECTS ON EACH OF US.
23. RELIGION IS PURELY A PERSONAL DECISION.
24. WHEN I GO SHOPPING, I TEND TO MAKE LISTS.
25. I PREFER "TRUE, FALSE" TESTS.
26. I LIKE TO FIGURE OUT THE WAY THE PARTS OF A WHOLE FIT TOGETHER.
27. WHEN I HAVE TO SOLVE A PROBLEM, I TRY TO SEE IT FROM AS MANY VIEWPOINTS AS POSSIBLE.
28. I FIND REASONING LIKE THIS STATEMENT HELPS ME UNDERSTAND:

ALL DOGS BARK.
THIS ANIMAL IS A DOG.
THEREFORE, THIS ANIMAL BARKS.

RETURN TO THE TOP OF THE NEXT PAGE AND THE TALLY SHEET AND FOLLOW THE SAME PROCEDURE AS BEFORE!

1. I UNDERSTAND THE DAILY NEWS BETTER IF I HEAR IT ON THE RADIO THAN IF I READ IT IN THE NEWSPAPER.
2. ORAL MATHEMATICS TESTS ARE EASIER FOR ME THAN WRITTEN MATHEMATICS TESTS.
3. I PREFER CLASSES WHICH DEPEND UPON TEXTBOOKS.
4. I KEEP WRITTEN RECORDS OF THE MONEY I GET AND THE WAY I SPEND IT.
5. I CAN RECOGNIZE WHO IS ON THE PHONE JUST BY LISTENING TO THE VOICE FOR A FEW MOMENTS.
6. I CAN TELL THE DIFFERENCE BETWEEN SEVERAL KINDS OF FLOWERS BY SMELLING THEM.
7. THE TASTE OF FOOD IS MORE IMPORTANT THAN THE WAY IT LOOKS.
8. I USE MY FINGERS TO FEEL OUT THE TEXTURE OF THE WOOD.
9. I ENJOY LOOKING AT ART WORK.
10. WHEN I WALK DOWNSTAIRS, I LOOK AHEAD RATHER THAN AT MY FEET.
11. I UNDERSTAND HOW A PERSON FEELS WHEN HE IS BEING PUNISHED.
12. I ENJOY THE AUTHOR'S WRITING STYLE AS MUCH AS THE STORY HE TELLS.
13. I WOULD NOT AGREE TO CHEAT IF I WERE OFFERED A BRIBE.
14. I CAN LOOK LIKE I AM CALM AND COMFORTABLE EVEN THOUGH I AM ANGRY AND UNCOMFORTABLE.
15. I SHRUG MY SHOULDERS WHEN SAYING "I DON'T KNOW."
16. LEARNING TO THROW A BALL THE RIGHT WAY IS IMPORTANT.
17. I CAN RECOGNIZE THOSE WHO WILL BE FRIENDLY TO ME.
18. I SET GOALS THAT SUIT MY NEEDS AND ABILITIES.
19. I CAN STOP PEOPLE FROM ARGUING.
20. IT BOTHERS ME FOR A FRIEND TO BE LATE FOR AN APPOINTMENT WITH ME.
21. WHEN SHOPPING FOR CLOTHES, I PREFER HAVING A FRIEND ALONE TO HELP ME MAKE CHOICES.
22. I ENJOY OUTDOOR ACTIVITIES WHEN I AM WITH MY FAMILY.
23. I WOULD RATHER DO THINGS MY WAY EVEN IF MY FAMILY OR FRIENDS DON'T AGREE.
24. LIFE IS SIMPLE IF YOU GO BY THE RULES.
25. IN MY CHOICE OF CLOTHING, I WEAR BRIGHT STRIKING COLORS.
26. I TEND TO THINK OF ALL PARTS OF THE WORLD AS WORKING TOGETHER.
27. ONE CANNOT SOLVE A PROBLEM UNLESS HE KNOWS ALL THE FACTS.
28. I ENJOY THE WAY MATH MAKES ME THINK.

RETURN TO THE TOP OF THE NEXT PAGE AND THE TALLY SHEET AND FOLLOW THE SAME PROCEDURE AS BEFORE!

1. I WOULD RATHER TELEPHONE A FRIEND THAN WRITE HIM A NOTE.
2. WHEN TAKING A MATH CLASS, I FIND IT EASY TO TALK ABOUT THE PROBLEMS WITH MY FRIENDS AND THE TEACHER.
3. I SCORE HIGH ON TESTS WHICH DEPEND UPON READING FIRST AND THEN ANSWERING QUESTIONS ABOUT WHAT I HAVE READ.
4. WHEN I AM IN MATH CLASS TRYING TO DO WORD PROBLEMS, I AM AMONG THE FIRST TO REACH THE RIGHT ANSWER.
5. I CAN REMEMBER MUSIC WELL ENOUGH TO RECOGNIZE A "TUNE" THE NEXT TIME I HEAR IT.
6. THE SMELLS IN A ROOM TELL ME WHETHER IT IS A PLEASANT OR UNPLEASANT PLACE.
7. I CAN IDENTIFY ROOTBEER OR COKE JUST BY THE TASTE.
8. I LIKE FURNITURE THAT FEELS GOOD TO MY HAND.
9. I UNDERSTAND A BOOK BETTER IF IT HAS PICTURES AND DRAWINGS.
10. I CAN WRITE NEATLY WHILE ANOTHER PERSON IS TELLING ME WHAT TO WRITE.
11. I TRY NOT TO SAY THINGS WHICH MAY HURT THE FEELINGS OF OTHERS.
12. I ENJOY LISTENING TO MUSIC WHEN IT SOUNDS GOOD.
13. I WOULD GIVE UP SOMETHING I WANT TO DO NOW RATHER THAN SACRIFICE ONE OF MY VALUES.
14. I AM ABLE TO ACT OUT SOMETHING IF I WANT TO.
15. I "TALK WITH MY HANDS" MORE THAN OTHERS DO.
16. WHEN LEARNING A NEW DANCE, I AM WILLING TO PRACTICE THE STEPS UNTIL I CAN DO THE PERFECTL
17. UNLESS SPOKEN TO FIRST, I DO NOT SPEAK TO A TEACHER.
18. I CAN ACCURATELY PREDICT IF I WILL BE ABLE TO GET MY WORK DONE.
19. I CAN CONVINCE OTHERS TO WANT TO DO THE THINGS THAT I WOULD LIKE THEM TO DO.
20. IT BOTHERS ME WHEN EVENTS DO NOT START ON TIME.
21. I LIKE TO SHARE IDEAS WITH FRIENDS.
22. I TALK WITH MY FAMILY BEFORE DOING ANYTHING THAT MIGHT AFFECT THEM.
23. WHEN GIVEN A PROBLEM TO SOLVE, I FIND THE ANSWER MYSELF.
24. I PREFER WORKING IN STITUATIONS WHERE STANDARDS AND RULES ARE STATED SPECIFICALLY.
25. WHEN I AM JUDGING OTHERS, I COMPARE WHAT THEY DO NOW WITH WHAT THEY DID BEFORE.
26. WHEN LOOKING AT SOMETHING MADE BY SOMEONE ELSE (A PAINTING, A BUILDING, FURNITURE) I LIKE TO FIGURE OUT WHY THE PERSON MADE IT AS THEY DID.
27. INFORMATION SHOULD BE STUDIED IN A NUMBER OF WAYS BEFORE A DECISION IS MADE.
28. I FIND THE TYPE OF REASONING DEMANDED BY MATHEMATICS SUITS MY WAY OF THINKING.

RETURN TO THE TOP OF THE NEXT PAGE AND THE TALLY SHEET AND FOLLOW THE SAME PROCEDURE AS BEFORE

1. I PREFER TO FOLLOW SPOKEN DIRECTIONS RATHER THAN WRITTEN DIRECTIONS.
2. IT IS EASY FOR ME TO REMEMBER THE NUMBERS AND PRCICES I HAVE HEARD DURING A CONVERSATION.
3. I PREFER TO HAVE DIRECTIONS WRITTEN ON THE BOARD WHILE THEY ARE BEING EXPLAINED.
4. I USE A WRITTEN RECORD TO SHOW FOR MONEY, WHICH I AM RESPONSIBLE FOR.
5. I AM ABLE TO TELL WHICH GROUPS OF INSTRUMENTS ARE PLAYING AT DIFFERENT TIMES DURING A CONCERT.
6. I NOTICE THE WAY DIFFERENT PLACES SMELL.
7. I WOULD RETURN TO A RESTAURANT BECAUSE THE FOOD TASTED GOOD.
8. I PICK UP AND FEEL VEGETABLES AND FRUITS BEFORE EATING THEM.
9. A STORY IS EASIER TO UNDERSTAND IN A MOVIE THAN IN A BOOK.
10. WHEN I RIDE A BIKE, I LOOK AHEAD RATHER THAN AT THE HANDLEBARS.
11. I AM ABLE TO GIVE ADVICE WITHOUT OFFENDING OTHERS.
12. I WOULD GO OUT OF MY WAY TO SEE BEAUTIFUL SCENERY.
13. I DON'T LET MY FRIENDS INTERFERE WITH MY COMPLETING AN ASSIGNMENT.
14. I CAN ACT INTELLIGENT WHEN THE SITUATION DEMANDS.
15. WALKING WITH A SPRING IN YOUR STEP GIVES THE IMPRESSION THAT YOU ARE HAPPY.
16. TO BECOME A GOOD MUSICIAN, I WOULD PRACTICE CORRECT FINGER MOVEMENTS.
17. IF I NEED TO BORROW A QUARTER, I WOULD KNOW WHOM TO APPROACH.
18. I KNOW MY STRENGTHS AND WEAKNESSES.
19. I CAN PERSUADE PEOPLE TO DO THINGS MY WAY.
20. I AM AMONG THE FIRST TO COME TO A MEETING.
21. BEFORE CHOOSING A CLASS, I WOULD DISCUSS IT WITH MY FRIENDS.
22. I FIND IT IMPORTANT TO TALK THINGS OVER WITH MY FAMILY.
23. I CONSIDER MY PERSONAL GOALS BEFORE THE GOALS OF OTHERS.
24. IN SPORTS AND AT WORK, IT IS IMPORTANT TO "PLAY BY THE RULES."
25. I ASK QUESTIONS TO MAKE PEOPLE THINK ANOTHER WAY.
26. IT IS EASY FOR ME TO PUT PUZZLES TOGETHER.
27. I TAKE LONGER TO MAKE UP MY MIND BECAUSE I WANT TO KNOW MORE ABOUT AN ISSUE THAN MOST OTHER PEOPLE DO.
28. I FIND IT EASIER TO WIN AN ARGUMENT WHEN I STATE A FACT AND GIVE A LOGICAL CONCLUSION.

RETURN TO THE TOP OF THE NEXT PAGE AND THE TALLY SHEET AND FOLLOW THE SAME PROCEDURE AS BEFORE!

1. AFTER I WRITE A LETTER, I ASK SOMEONE TO READ IT TO ME SO THAT I KNOW IT SOUNDS RIGHT.
2. I CAN REMEMBER A TELEPHONE NUMBER ONCE I HAVE HEARD IT.
3. I WOULD RATHER READ A NEWSPAPER TO MYSELF THAN HAVE SOMEONE READ IT TO ME.
4. I HAVE TO WRITE DOWN A PHONE NUMBER IN ORDER TO REMEMBER IT.
5. I CAN RECOGNIZE THE DIFFERENCE BETWEEN TWO CLOSELY PITCHED SOUNDS.
6. YOU CAN TELL IF A CAR IS NEW BY ITS SMELL.
7. I CHOOSE A DRINK BY THE WAY IT TASTES.
8. I DECIDE MY HAIR NEEDS WASHING BY THE WAY IT FEELS WHEN I TOUCH IT.
9. I CAN PICTURE SOMETHING IN MY MIND FROM A DESCRIPTION.
10. I CAN DRIBBLE A BASKETBALL WITHOUT WATCHING MY HANDS.
11. WHEN SOMEONE IS FRIGHTENED, I CAN BE PATIENT AND CALM RATHER THAN ANSWER IN ANGER.
12. I ENJOY THE BEAUTY OF A WELL-DESIGNED BUILDING.
13. I BELIEVE THAT A PROMISE SHOULD BE KEPT.
14. I CAN ACT FRIENDLY IN ORDER TO GET FAVORS.
15. WHEN I SHAKE HANDS WITH SOMEONE, THE HANDSHAKE TELLS ME HOW SINCERE THE PERSON IS.
16. WHEN I ENGAGE IN SPORTS, I PRACTICE OR WARM-UP FIRST.
17. FIRST NAMES ARE GOOD IF THE OTHER PERSON LIKES FIRST NAMES.
18. I KNOW THE AMOUNT OF ENERGY IT TAKES FOR ME TO DO SOMETHING.
19. FRIENDS ASK ME TO HELP SOLVE THEIR PROBLEMS.
20. I TURN IN ASSIGNMENTS WHEN THEY ARE DUE.
21. I MAKE DECISIONS AFTER DISCUSSING THEM WITH MY FRIENDS.
22. I UNDERSTAND EVENTS BETTER AFTER DISCUSSING THEM WITH MY FAMILY.
23. I DO NOT NEED OTHERS TO HELP ME MAKE DECISIONS.
24. IF I SEE WHAT I WANT SHOPPING FOR CLOTHES, I BUY IT.
25. I AM COMFORTABLE DOING THINGS DIFFERENTLY FROM OTHE PEOPLE.
26. I TRY TO UNDERSTAND WHY PEOPLE BREAK RULES.
27. A PERSON CAN NEVER KNOW ENOUGH ABOUT THE UNIVERSE.
28. KNOWLEDGE FLOWS LOGICALLY FROM GIVEN FACTS.

RETURN TO THE TOP OF THE NEXT PAGE AND THE TALLY SHEET AND FOLLOW THE SAME PROCEDURE AS BEFORE!

1. WHEN I HAVE TO EXPLAIN SOMETHING, I CAN SAY IT BETTER THAN I CAN WRITE IT.
2. I DISCUSS "SALE" PRICES WITH OTHERS BEFORE I GO SHOPPING.
3. I PREFER TO READ DIRECTIONS TO MYSELF RATHER THAN HAVE SOMEONE READ THEM TO ME.
4. WHEN I GO SHOPPING, I READ THE PRICES OF EACH ITEM AND KEEP A TOTAL IN MY HEAD SO I DON'T SPEND TOO MUCH.
5. NOISES BOTHER ME WHEN I AM TRYING TO READ OR TALK TO SOMEONE.
6. ANY BAD SMELL IN A ROOM BOTHERS ME MORE THAN IT DOES OTHER PEOPLE.
7. I ENJOY TRYING NEW FOODS TO FIND OUT WHAT THEY TASTE LIKE.
8. I CAN TELL A NICKEL FROM A DIME WITH MY FINGERS WHEN I REACH INSIDE MY POCKET.
9. WHEN I TUNE A RADIO, I LOOK AT THE DIAL.
10. I CAN PLAY MANY GAMES WELL ENOUGH TO ENJOY THEM.
11. I CAN BE PATIENT WITH PEOPLE WHO HAVE SOMETHING ELSE ON THEIR MIND.
12. POETRY IS BEAUTIFUL BECAUSE OF ITS IDEAS AS WELL AS ITS WORDS AND RHYTHM.
13. I WORK JUST AS HARD WHETHER OR NOT MY TEACHER OR PARENTS ARE THERE.
14. I SHOUT AND ACT TOUGH IN ORDER TO FRIGHTEN OTHERS WHEN I AM FRIGHTEN MYSELF.
15. I CAN TELL HOW A PERSON FEELS BY THE WAY HE SITS OR STANDS.
16. I ENJOY PRACTICING GOOD PHYSICAL SKILLS SO THAT I CAN COMPETE SUCCESSFULLY IN SPORTS.
17. IF I BUMP AGAINST ANOTHER PERSON IN A STORE, I KNOW WHETHER TO APOLOGIZE A LOT OR WITH A SINGLE WORD.
18. I CAN CONVINCE MYSELF THAT BORING TASKS MUST BE FACED OR COMPLETED.
19. AT PARTIES, I CAN GET EVERYBODY TO HAVE FUN.
20. I ARRIVE AT CLASS ON TIME.
21. I AM INFLUENCED BY FRIENDS' POLITICAL OPINIONS.
22. I CONSULT WITH MY FAMILY BEFORE MAKING DECISIONS.
23. AFTER GATHERING INFORMATION FROM MANY SOURCES, I MAKE DECISIONS ALONE.
24. ONCE I MAKE UP MY MIND, I DON'T CHANGE IT.
25. WHEN I AM SAD, HAPPY MUSIC CHEERS ME UP.
26. THERE IS ALWAYS A REASON FOR A PERSON'S BEHAVIOR.
27. THE MORE I KNOW ABOUT A PROBLEM, THE MORE I WANT TO KNOW ABOUT IT.
28. I UNDERSTAND THE WAY TO FIND ANSWERS IN MATH.

RETURN TO THE TOP OF THE NEXT PAGE AND THE TALLY SHEET AND FOLLOW THE SAME PROCEDURE AS BEFORE!

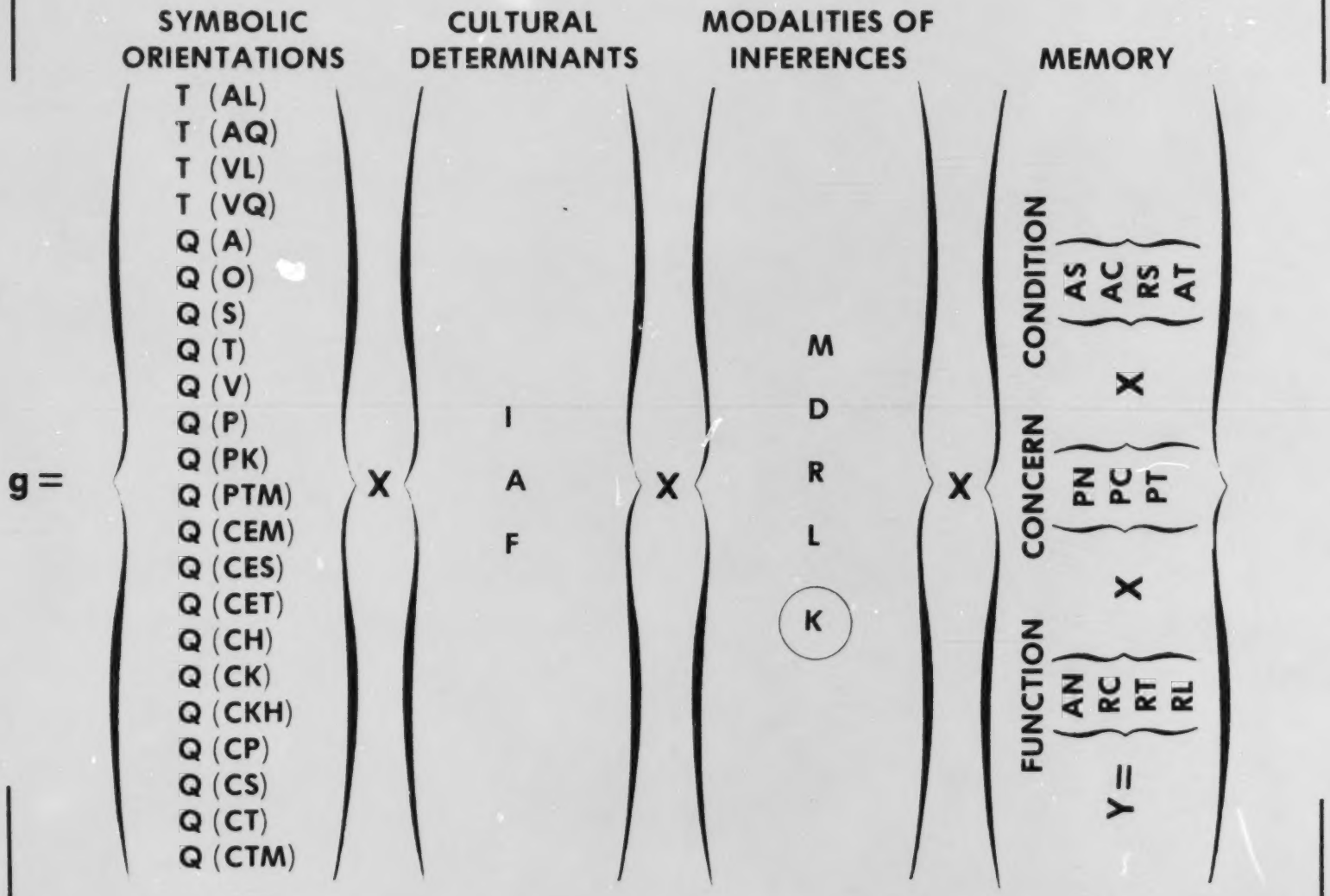
1. I PREFER CLASSES WHERE THE TEACHER LETS STUDENTS TELL WHAT THEY THINK AND ASK QUESTIONS.
2. IF I WERE BUYING A BICYCLE, I WOULD DISCUSS COST, SERVICE, AND WHAT COMES WITH IT WITH THE SALESMAN OR WITH A FRIEND.
3. I UNDERSTAND INFORMATION BETTER WHEN I READ IT RATHER THAN WHEN I HEAR IT.
4. IF I WERE BUYING A BICYCLE, I WOULD ASK THE SALESMAN TO WRITE OUT THE COST, SERVICE, AND WHAT COMES WITH IT.
5. I TUNE THE RADIO BY SOUND NOT BY THE NUMBERS ON THE DIAL.
6. WHEN THERE ARE FUMES IN THE CAR OR IN THE HOUSE I NOTICE THEM SOONER THAN OTHERS DO.
7. MY "SUFFERING" IN THE DENTIST'S CHAIR IS LESS IF HE USES GOOD TASTING MATERIALS IN MY MOU
8. I PREFER TO WRITE WITH A PEN THAT FEELS COMFORTABLE.
9. I KNOW A PERSON BETTER IF I SEE A PICTURE OF HIM THAN IF I READ ABOUT HIM.
10. I AM CONSIDERED TO BE A "GOOD" ATHELETE.
11. I ONLY LAUGH AT PEOPLE WHEN THEY LAUGH AT THEMSELVES.
12. USEFULNESS IS IMPORTANT, BUT BEAUTY IS IMPORTANT TOO.
13. I WOULD STOP FOR A "STOP" SIGN ANY TIME IF THERE WERE NO OTHER CAR OR PERSON IN SIGHT.
14. I CAN ACT INTERESTED EVEN THOUGH BORED WHEN LISTENING TO A TEACHER.
15. WHEN I AM TALKING, I USE MY EYES TO EXPRESS MY FEELINGS.
16. I HAVE PRACTICED SUCH THINGS AS BASKETBALL, RUNNING RACES, HANDWRITING, SO THAT I CAN DO THEM WELL.
17. I KNOW WHICH PEOPLE ENJOY A PAT ON THE BACK WHEN THEY DESERVE IT.
18. I CAN TELL WHEN I AM JUST ABOUT TO LOSE MY PATIENCE.
19. SALES PEOPLE FIND EASILY WHATEVER I AM ASKING FOR.
20. I KEEP MY APPOINTMENTS ON TIME.
21. I WOULD JOIN A RELIGIOUS GROUP IF MY FRIENDS BELONGED TO IT.
22. I MAKE IT A POINT NOT TO LET MY SCHOOL WORK INTERFERE WITH FAMILY PLANS.
23. WHEN GIVEN A JOB TO DO, I'D RATHER DO IT MYSELF.
24. IN JUDGING OTHERS, I FIND IT IMPORTANT TO KNOW THE RULES THAT WERE SET FOR THEM.
25. PEOPLE WHO BECOME A SUCCESS ARE DIFFERENT FROM PEOPLE WHO FAIL.
26. I PREFER TO BE OFFERED MORE THAN ONE CHOICE.
27. THE MORE INFORMATION YOU COLLECT ABOUT A PROBLEM THE BETTER YOUR ANSWER WILL BE.
28. I LIKE THE KINDS OF PROBLEMS THAT HAVE DEFINITE ANSWERS.

THE END

SEX RACE VETERAN FINANCIAL AID

CURRICULUM LOCATION Soc. Security Number

COGNITIVE STYLE MAP



APPENDIX - C-2

Page 91

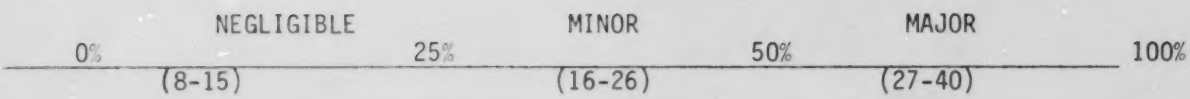
101

© Dr. Joseph E. Hill, President
Oakland Community College
Bloomfield Hills, Michigan

102

A P P E N D I X- C-3

SCORING FOR CSM



APPENDIX - D

BASIC MEANING OF COGNITIVE SYMOBLS

These symbols represent the sensitivity of the individual to obtain meaning from that which they represent.

THEORETICAL SYMBOLS

T(AL)	Theoretical Auditory Linguistic	Meaning from words heard
T(AQ)	Theoretical Auditory Quantitative	Meaning from numbers heard
T(VL)	Theoretical Visual Linguistic	Meaning from words seen
T(VQ)	Theoretical Visual Quantitative	Meaning from numbers seen

QUALITATIVE SYMBOLS

Q(A)	Qualitative Auditory	Meaning through sound
Q(O)	Qualitative Olfactory	Meaning through smell
Q(S)	Qualitative Savory	Meaning through taste
Q(T)	Qualitative Tactile	Meaning through touch
Q(V)	Qualitative Visual	Meaning through sight
Q(P)	Qualitative Proprioceptive	Combining associated skills
Q(CEM)	Qualitative Code Empathetic	Feeling for others
Q(CES)	Qualitative Code Esthetic	Enjoyment of beauty
Q(CET)	Qualitative Code Ethic	Commitment to a set of values
Q(CH)	Qualitative Code Histrionic	Playing a role
Q(CK)	Qualitative Code Kinesics	Understanding body language
Q(CKH)	Qualitative Code Kinesthetics	Performing motor skills
Q(CP)	Qualitative Code Proxemics	Judging acceptable social distance
Q(CS)	Qualitative Code Synnoetics	Personal knowledge of oneself
Q(CT)	Qualitative Code Transactional	Positive communication interaction
Q(CTM)	Qualitative Code Temporal	Behaving according to time expectations

CULTURAL DETERMINANTS (Associate, family, and self)

A	Associates	Influenced by friends and peers
F	Family	Influenced by family
I	Independent	Significant independence

MODALITIES OF INFERENCES (Reasoning Process)

M	Magnitude	Reasoning with rules, definitions
D	Difference	Reasoning with contrasts
R	Relationship	Reasoning with likenesses
L	Appraisal	Reasoning with MLR and analyzing
(K)	Circle K	Reasoning with logical proof

A P P E N D I X - E

JOB DESCRIPTIONS FOR PROJECT STAFF

JOB: PROJECT DIRECTOR

RESPONSIBLE TO: Vice President of Academic Affairs

RESPONSIBILITES: Administration and Management of the Project.

EXAMPLES OF WORK PERFORMED:

1. To supervise and evaluate the project counselor and secretary and to facilitate cooperative working relationships with project instructors.
2. To provide for inservice training and and travel for the project staff.
3. To provide for evaluation and follow-up on project objectives and activities.
4. To make any purchases and to maintain the budget.
5. To administer the project within the confines of this proposal.
6. Data collection and project reporting.

A P P E N D I X - E

JOB DESCRIPTION FOR PROJECT STAFF

JOB: PROJECT COUNSELOR

RESPONSIBLE TO: Project Director

RESPONSIBILITIES: Counseling and Assessment

EXAMPLES OF WORK PERFORMED:

1. To coordinate the administration of the inventories.
2. To establish a systematic procedure for student counseling via CSM and the SDS.
3. To provide for interpretation and counseling.
4. To develop multi-media CSM interpretation devices.
5. To consult with faculty regarding student academic progress.

A P P E N D I X - E

JOB DESCRIPTIONS FOR PROJECT STAFF

JOB: PROJECT SECRETARY

RESPONSIBLE TO: Project Director

RESPONSIBILITIES: Typing and filing, test scoring, data collection.

EXAMPLES OF WORK PERFORMED:

1. To coordinate the scoring of the inventories and to insure that proper instructors receive student maps.
2. To type reports.
3. To coordinate notification of inservice training workshops.
4. To collect all data for studies.

A P P E N D I X- F

CALENDAR FOR CSM INSERVICE TRAINING

June	Visit to Oakland Community College, Bloomfield Hills, Michigan, Jane Reece, Project Developer, Henry Giles, V.P. of Development and Chairman of Advisory Committee, Karen Atkins, Dean of Allied Health, Joellen Cantrell, Dean of Business.
June	Visit to Polk Community College, Winterhaven, Florida, Don Cameron, V.P. of Academic Affairs, Barbara Cobb, Department Head, Secretarial Science, Jim Gowens, Department Head, Air Conditioning and Refrigeration, and Brenda Hill, Instructor, Developmental Studies.
August	Workshop at Spartanburg Technical College, Empirical Mapping and Interpretation, Dr. Tom Volk, Director of Individualized Learning Laboratory, Oakland Community College.
November	Conference at Mountainview Community College, Dallas, Texas, Ken Barnhill, Counselor, Debbie Davidson, Instructor, Developmental Studies, and Willie Lake, Instructor, Secretarial Science.
November	Presentation at Central Piedmont Community College, Charlotte, N. C., Ken Barnhill, Counselor, and Jane Reece, Project Developer.
January	Workshop at Spartanburg Technical College, Joe Hill on VTR All project staff.
March	Visit to Adult Learning Center, Niagara Falls, New York, Melva Huffstettler, Instructor, Developmental Studies, and Jane Reece, Project Developer.
May	Conference at Mountainview Community College, Dallas, Texas, Barbara Cobb, Secretarial Science Department Head, and Jane Reece, Project Developer.

A P P E N D I X- G

ADVISORY COMMITTEE

This project was developed and then administered during Phase I April 1, 1977-June 30, 1977, by an Advisory Committee composed of the following persons:

Henry Giles, Chairman of Advisory Committee
Vice President of Development

Ron Hampton, Former Vice President of Academic Affairs

Sally Abrams, Former Director of Advancement Studies

Jocelle Heatherly, Dean of Continuing Ed.

Sandra Henderson, Former Director of CETA.

Jane Reece, Director of Counseling

Darlene Richardson, Dean of Students

A P P E N D I X - H-1

MATERIALS AND EQUIPMENT PURCHASED FOR THE SECRETARIAL SCIENCE DEPARTMENT

VTR equipment (recorder, monitor, mike and cart.) This equipment is used to video speakers, and will be used to video certain lecture classes.

Eighteen blank video-tapes are being used to video lectures.

Two sets of 40 Super 8 film on Gregg Shorthand Theory. These film are used as individualized visual instruction for Beginning Gregg Shorthand Theory. Also, they are used for review of Gregg Theory in remedial and brush-up shorthand classes.

Four Fairchild rear-view projectors for Super 8 films. These machines are used for the Beginning Gregg Shorthand Theory Super 8 film listed above.

APPENDIX - H-2

MATERIALS AND EQUIPMENT PURCHASED AND DEVELOPED FOR THE DEVELOPMENTAL STUDIES DEPARTMENT

VTR equipment (recorder, monitor, mike and cart.) This equipment is being used with the KET GED series and with video-tapes which have been made by instructors here at Spartanburg Technical College. This equipment has also been used extensively with Adkins.

Two Wallensak dual track recorders have been used for auditory testing of the IOWA test with visually impaired and blind students.

Ninety blank video-tapes have been used for making tapes in the areas of Math, English, and Reading and (2) for recording inservice training.

Tape cabinet has been used to store auditory tapes.

Kaleidscope readers are high interest readers written on a variety of levels (2-9). They have been used to teach both vocabulary and comprehension. The comprehension checks utilize the various modalities of inference.

Be a Better Reader- These books range from grade 4 through grade 12. Specific reading skills are taught and in addition content in social studies, science, and literature is taught. While they are geared to a major TVL, the different modalities of inference are employed.

Thirty-five VTR presentations were developed for language usage and math in Developmental Studies. In addition, a number of written materials were developed.

A P P E N D I X- H-3

MATERIALS AND EQUIPMENT PURCHASED FOR CAREER COUNSELING

Career Exploration Materials

1 JNP Tape Library
Jeffery Norton Publishers

1 Occupational View Deck
Chronicle Guidance Publications

1 Set Career Monographs
Institute for Research

1 Set Filmstrips and Slides
Career Choice: A Lifelong Process
Guidance Associates

5 Career Wheels
APGA

1 Occupational Outlook Handbook
U.S. Department of Labor

1 Set (filmstrips & tapes)
Office Education Series I,
International Film Bureau

1 Film "Work: What's It All About"
APGA

1 Film "Office Careers"
APGA

1 Film on Resume Writing and
Interviewing

Equipment

2 Dukane Sound Filmstrip Projectors
Cassette, A-V Model # 28A-1

1 Projector Storage Table
Model # SC-42 A

5 Cassette Players
Panasonic (Play Back Only)

1 Green Recorder & Play Back

5 Headphones

1 IBM Selectric II Typewriter

1 Dukane Sound Filmstrip Projector
Cassette Super Model-28A-15-A

1 3M Overhead Projector
Model 5-088

1 Caramate Audio Record and
Play Back

1 Film Screen

1 Caramate-Play Back Only

A P P E N D I X - I-1

SECRETARIAL SCIENCE SELF-PACED INSTRUCTIONAL DESIGN

Individualization in instruction in the Secretarial Science Department at Spartanburg Technical College means that the coursework is based on units of modules of instruction. The curriculum incorporates tapes, books, and slide tapes into the curriculum. This flexible designing allows students to progress through the course as quickly as they are able to master the units of instruction. Mastery of units of instruction and mastery of courses such as Typing, I, II, and III are determined by achievement against evaluation criteria. While student progress is not impeded by the instructional design, the courses are not totally self-paced in that students are given predetermined time frames for the completion of assignments.

All typing and shorthand courses are individualized. Course packages are composed of seven basic elements: 1) Outline and Objectives, 2) Study Guide, 3) Information Sheets, 4) Work Sheets, 5) Project Sheets, 6) Inventory, and 7) Revision Data Sheets.

The first element of the package, Outline and Objectives, informs the student of the performance criteria for the course while the Study Guide directs the student to various materials: texts, workbooks, information sheets, work sheets, project sheets, cassettes or filmstrips. Information Sheets consist of the purpose of the course, grading procedure, classroom procedure, and other general instruction. Work Sheets and Project Sheets direct the student to specific problems and projects. Scores on Inventories

determine if a student is ready to proceed to the next unit or the next course, and the Revision Data Sheet provides student opportunity for input into course package revisions.

Individualization of courses in the method described allows for felxibile entry, progressing, and exit of students. It therefore prevents a yearly flooding of the job market. In preparation for actual work situations, students complete their assignments with a minimum of supervision but are given help as it is needed.

A P P E N D I X - I-2

THE INDIVIDUALIZED MANPOWER TRAINING SYSTEM (IMTS)

The Individualized Manpower Training System (IMTS) is a multi-media, individualized, self-paced, self-instructional system designed by the Technical Education Research Centers for delivery of basic remedial and related training.

There are five component programs in the IMT System; of these five, the program "Reading, Arithematic, Language, " a program of diagnosing and prescribing for individualized improvement of learning difficulties, was the program under consideration within the present study. Units of instruction within the "Reading, Arithematic, Language" program are based on pre-and post-test scores of the Tests of Adult Basic Education.

APPENDIX- J-1

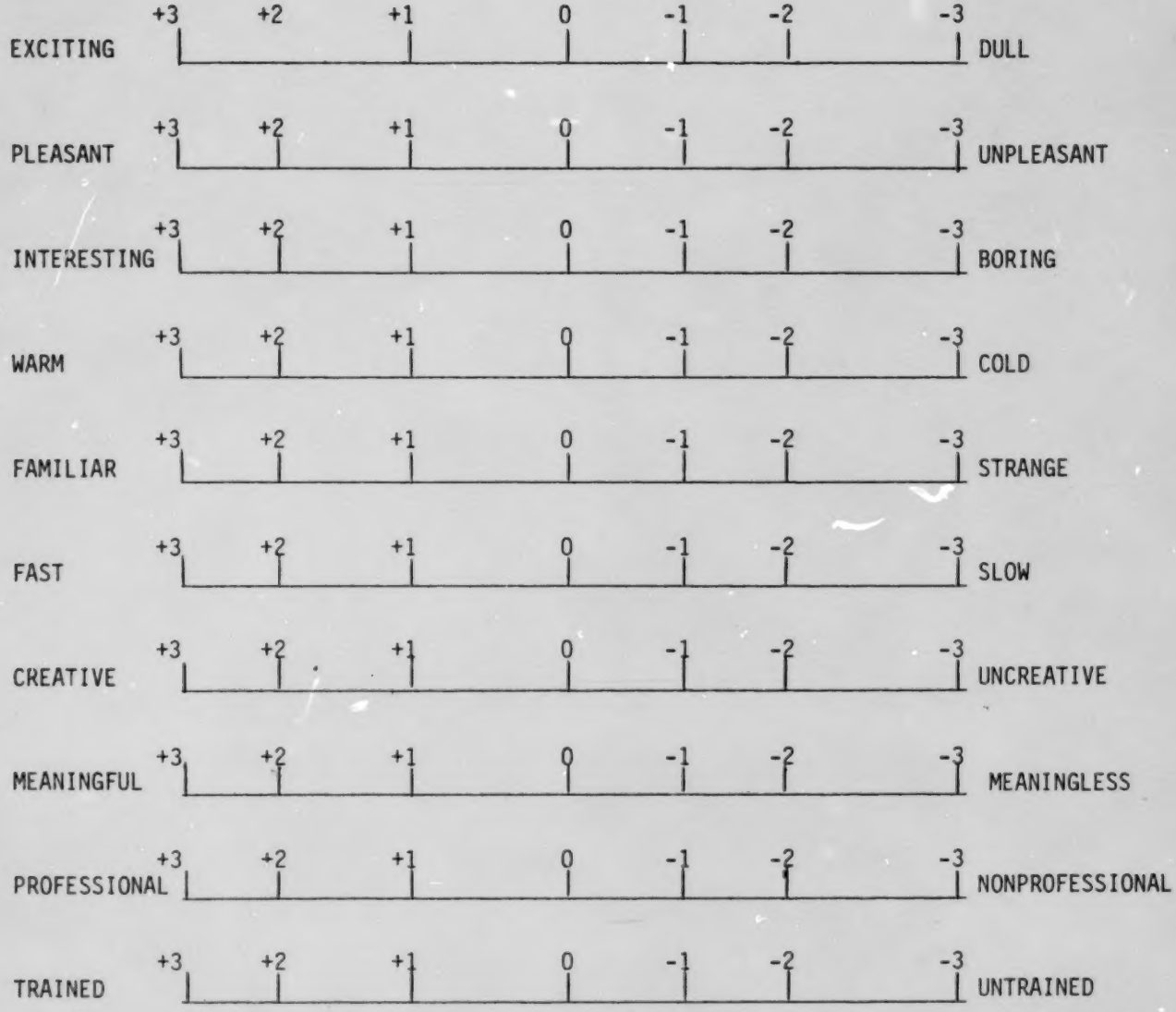
THE WAY TYPING AND SHORTHAND CLASSES WERE CONDUCTED

	+3	+2	+1	0	-1	-2	-3	
EXCITING								DULL
PLEASANT								UNPLEASANT
INTERESTING								BORING
WARM								COLD
FAMILIAR								STRANGE
FAST								SLOW
CREATIVE								UNCREATIVE
MEANINGFUL								MEANINGLESS
PROFESSIONAL								NONPROFESSIONAL
TRAINED								UNTRAINED

SEMANTIC DIFFERENTIAL FOR SECRETARIAL SCIENCE

APPENDIX-J-2

THE WAY MATH AND ENGLISH CLASSES WERE CONDUCTED



SEMANTIC DIFFERENTIAL FOR DEVELOPMENTAL STUDIES

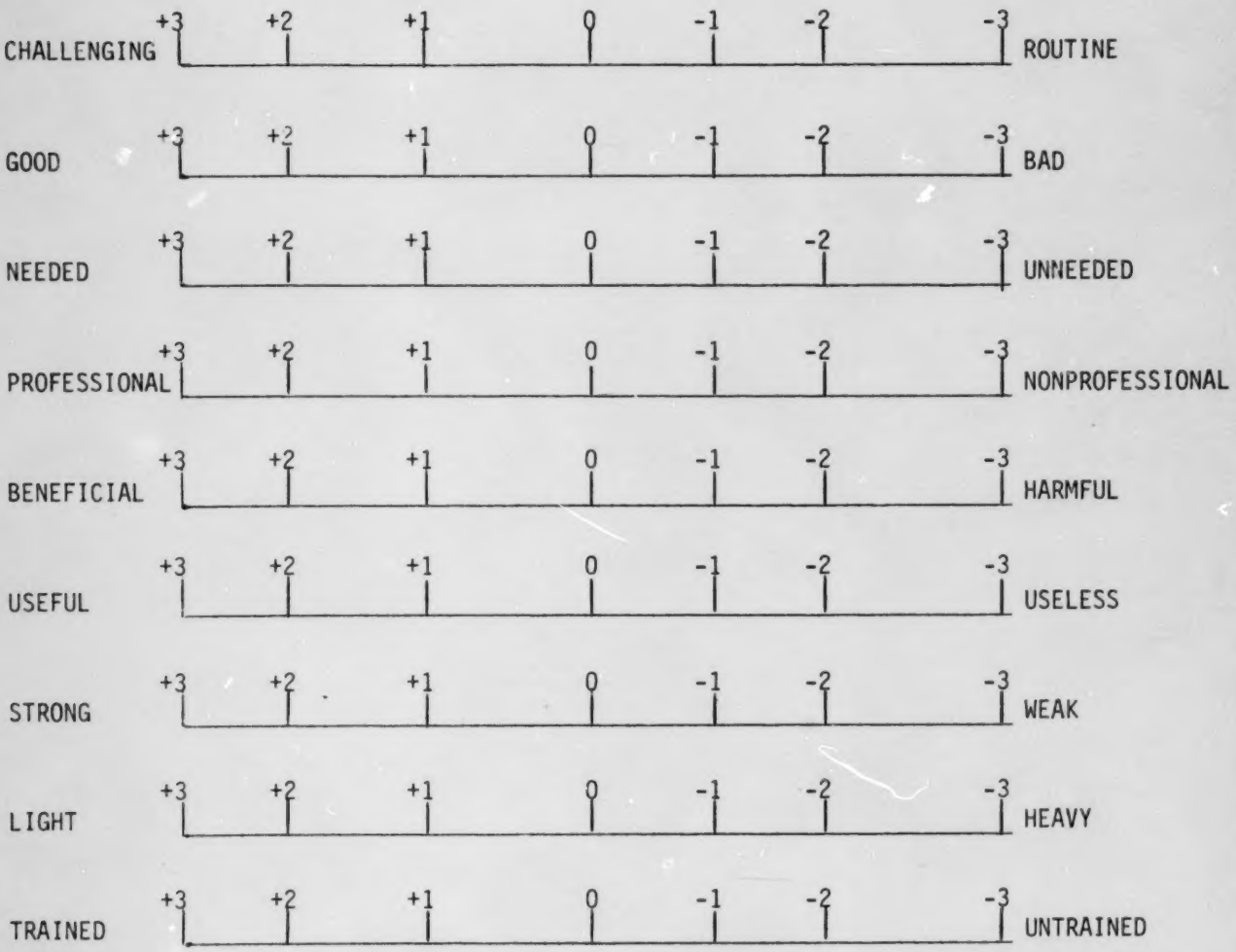
THE WAY CAREER COUNSELING WAS DONE

CHALLENGING +3 +2 +1 0 -1 -2 -3 ROUTINE
GOOD +3 +2 +1 0 -1 -2 -3 BAD
NEEDED +3 +2 +1 0 -1 -2 -3 UNNEEDED
PROFESSIONAL +3 +2 +1 0 -1 -2 -3 NONPROFESSIONAL
BENEFICIAL +3 +2 +1 0 -1 -2 -3 HARMFUL
USEFUL +3 +2 +1 0 -1 -2 -3 USELESS
STRONG +3 +2 +1 0 -1 -2 -3 WEAK
LIGHT +3 +2 +1 0 -1 -2 -3 HEAVY
TRAINED +3 +2 +1 0 -1 -2 -3 UNTRAINED

SEMANTIC DIFFERENTIAL FOR SECRETARIAL SCIENCE

APPENDIX-J-4

THE WAY CAREER COUNSELING WAS DONE



SEMANTIC DIFFERENTIAL FOR DEVELOPMENTAL STUDIES

Spartanburg Technical College

DRAWER 4386 • SPARTANBURG, S. C. 29303 • TELEPHONE 576-5770

JOE D. GAULT
PRESIDENT

August 15, 1977

LETTER FROM SECRETARIAL SCIENCE DEPARTMENT HEAD

Dear

Welcome to Spartanburg Technical College! You are probably aware that it is time for school to begin once again. All students in the Secretarial Science program are being asked to come in on August 23 at 10:00 A. M. or 7:00 P. M. (which ever is more convenient for you) to complete an inventory that is part of an Educational Science program being held jointly with the Secretarial Science program this year. A map is included giving directions to the building and room being used.

It is imperative that you attend one of these sessions. If for any reason you cannot attend, please notify Jane Reece or Ken Barnhill at 576-5770 Ext. 111 and we will try to reschedule your appointment.

We are looking forward to seeing you on August 23.

Sincerely,

Barbara Cobb
Dept. Head Secretarial Science
Business Division

BC/tml
Enclosure

APPENDIX - L

PARTICIPATION AGREEMENT

I hereby agree to participate in a program to determine the value of career counseling and instructional methods. This program is being run by Spartanburg Technical College (TEC) and Educational Sciences Program as a part of the normal courses.

I understand that by agreeing to participate I will receive the following benefits:

1. Instruction in the basic skills necessary to complete the program, by instructors who normally conduct such classes at TEC and with textbooks and media normally used by TEC students.

2. Assurance that TEC and the Educational Sciences Program will treat confidentially any information I provide.

3. Assistance in exploring and selecting a career in the field.

I understand that as long as I am a participant in the program, I will have the following obligations:

1. To provide accurate information that is reasonably requested about myself and my course work.

2. To consent to the use of test scores and other data collected during the course of the year by TEC and Educational Sciences with the assurances of confidentiality given above.

3. To participate in one individual interview with a counselor regarding my scores on career counseling inventory.

I understand that I am participating in a program of experimental research and while my test scores and other data may be published in a group report of this research, my individual identity will in no way be disclosed. I futher understand that neither TEC nor the Educational Sciences Program is responsible for my performance in the program.

_____ _____

PARTICIPANT CITY AND STATE

_____ _____

STREET OR P.O. BOX # DATE

Spartanburg Technical College on behalf of the Educational Sciences Program in consideration of the agreement set forth above, agrees to provide the PARTICIPANT the benefits described above.

_____ _____

REP., SPARTANBURG TECHNICAL COLLEGE DATE

APPENDIX - M - 1

PROCEDURES FOR CSM INTERPRETATION: INSTRUCTIONAL PROGRAM

The following procedures were used by the counselor in interpreting individual students' maps in the instructional component:

1. The counselor first gave a brief orientation to CSM.

2. Next the counselor explained the meaning of each map element. In doing this, the counselor explained the student's score on each element. He also received confirmation regarding the accuracy of the scores. For example, a score on Qualitative Code Empathetic Q(CEM), the element concerning one's understanding of another's feelings, can be confirmed by asking the student if he/she understands the feelings of others by placing himself or herself in the other person's shoes.

3. After interpreting all of the elements, the counselor then asked the student if the map was an accurate picture of him or her. If not the map was redefined.

4. The counselor then explained what a personalized educational prescription is and how it can be implemented in the classroom. The counselor received student input on the particular prescription that he had made for each student.

PROCEDURES FOR CSM INTERPRETATION: CAREER COUNSELING PROGRAM

The following procedures were used by the counselor in interpreting individual students' maps in the career counseling component:

1. The counselor first gave a brief orientation to CSM.

2. Next the counselor explained the meaning of each map element. In doing this, the counselor explained the student's score on each element. He also received confirmation regarding the accuracy of the scores. For example, a score on Qualitative Code Empathetic O(CEM), the element concerning one's understanding of another's feelings, can be confirmed by asking the student if he/she understands the feelings of others by placing himself or herself in the other person's shoes.

3. After interpreting all of the elements, the counselor then asked the student if the map was an accurate picture of him or her. If not the map was redefined.

4. The counselor then asked if the student had selected a career or was exploring career options.

5. The counselor related the elements on the map to the careers under consideration by the student and also provided alternative careers based on an observation of the student's map.

APPENDIX - M - 3

PROCEDURES FOR SDS INTERPRETATION
CAREER COUNSELING PROGRAM

1. The counselor explained the aim and purpose of the SDS.

2. The counselor explained the personality types described by Holland and related the different personality types to their corresponding types of environments.

3. The counselor reviewed the components of the inventory with the student and checked the scoring for accuracy.

4. The counselor explained the graphs and how they relate to each other.

5. The counselor explained the summary code and how it is used to identify specific jobs in The Occupations Finder.

A P P E N D I X - N - 1

TABLE 1

Results of t-tests of differences between means: Developmental Studies: Instructional and Career Counseling Components:

Variable	Group	# Cases	T Value
Vocabulary	group 1	8	
	group 2	9	-1.71
Spelling	group 1	8	
	group 2	9	-0.20
Reading	group 1	8	
	group 2	9	-0.61
Math Computation	group 1	8	
	group 2	9	-0.71
Problem Solving	group 1	8	
	group 2	9	-0.70
Total Math	group 1	8	
	group 2	9	-0.71
Career Counseling	group 1	8	
	group 2	9	1.62
Class Conducted	group 1	8	
	group 2	9	-0.04

APPENDIX-N-1

TABLE 2

Results of t-tests of differences between means: Secretarial Science: Instructional and Career Counseling Components by Quarters:

Variable	Q-3 #Cases	Q-3 T-Values	Q-2 #Cases	Q-2 T-Values	Q-1 #Cases	Q-1 T-Values
Units Completed	19		19		19	
	19	.80	19	-.70	19	0.0
First Time	19		19		19	
Masteries	19	2.73	19	1,41	19	.81
Units Exempted	19		19		19	
	19	0.0	19	1.44	19	-.58
Final Grade	19		19		19	
	19	-.22	19	-0.60	19	1.81
Career Counseling	19	.05				
Class Conducted	19					
	19	.09				

APPENDIX - O

SECRETARIAL SCIENCE STUDENT SURVEY

1. OVERALL EVALUATION OF CSM:

1	2	2.07 X	3	4	5
Strongly Agree					Strongly Disagree

2. USEFULNESS OF CSM IN THE CLASSROOM:

1	1.62 X	2	3	4	5
Strongly Agree					Strongly Disagree

3. USEFULNESS OF CSM IN COUNSELING:

1	2	2.07 X	3	4	5
Strongly Agree					Strongly Disagree

4. RESPONSE TO HAVING DECENTRALIZED COUNSELING:

1	1.0 X	2	3	4	5
Strongly Agree					Strongly Disagree

A P P E N D I X- P

PROJECT CONSULTANTS

The following consultants assisted in the specified capacities:

Research Design
Dr. Ben Wolverton
Dean of Students
Technical Institute of Alamance
Han River, North Carolina

Data Collection and Interpretation
Dr. Judith Bazemore
Communications Services
Spartanburg, South Carolina

CSM Interpretation and Empirical Mapping
Dr. Tom Volk
Director of Individualized Programmed Learning Lab
Oakland Community College
Union Lake, Michigan

Final Evaluators:

Dr. Bob Day
Curriculum Consultant
S. C. State Board for Technical and Comprehensive Education
Columbia, South Carolina

Dr. Tom Griffin
Director of Advancement Studies
Central Piedmont Community College
Charlotte, North Carolina

Dr. Dave Mahrer
Assistant Director, Career Development
University of South Carolina
Columbia, South Carolina

APPENDIX - Q - 1

AGENDA

Thursday, May 11, 1978

9:00 - 9:45	Review of Objectives and Overview of Program. Dr. Don Cameron, Vice-President of Academic Affairs Jane Reece, Project Developer, Ken Barnhill, Counselor, and Teresa Lankford, Secretary.
9:45 - 10:15	Barbara Cobb, Department Head, Secretarial Science Room D-5.
10:15 - 10:45	Willie Lake, Instructor, Secretarial Science Room C-27.
10:45 - 11:00	Coffee Break Room C-26.
11:00 - 12:00	Interviews with Secretarial Science students
12:00 - 1:30	Lunch: Holiday Inn
1:30 - 2:15	Ken Barnhill, CSM Counselor Room C-26.
2:15 - 2:45	Debbie Davidson, Instructor, Developmental Studies Room C-26.
2:45 - 3:15	Melva Huffstettler, Instructor, Developmental Studies Room C-26.
3:15 - 3:35	Coffee Break Room C-26
3:35 - 4:00	Darlene Richardson, Dean of Students Room E-9.
4:00 - 4:20	Jocelle Heatherly, Dean of Continuing Education Room B-19.
4:20 - 4:40	Joellen Cantrell, Dean of Business Division Room C-19.
7:30	Dinner: Dr. Don Cameron, Jane Reece, Ken Barnhill, Mr. Joe Gault.

Friday, May 12, 1978

9:00 - 9:15	Coffee and Donuts
9:15 - 9:30	Review of Developmental Student Evaluation Room C-26.
9:30 - 9:50	Brenda Hill, Instructor, Developmental Studies Room C-26.
9:50 - 12:00	Project write-up/Completion of rating scale Room C-26.
12:00 - 1:00	Lunch: Holiday Inn
1:00 - 2:00	Exit Interview Jane Reece, Project Developer, Don Cameron, Vice President for Academic Affairs, and Henry Giles, Vice-President for Development Room E-12.

A P P E N D I X Q-2

RATING SCALE

Objective 1:
To test and place students in specific delivery systems appropriate to their learning styles.

Evaluation:
After talking with the counselor and faculty members, evaluate the accuracy of the CSM prescriptions.

1	2	2.5	3	4	5
		X			
Good			Average		Poor

Comments: The counselor has made some good efforts at prescription writing. However, consistent augmentation of prescriptions based on student changes and instructor perceptions does not seem to have occuried. The awareness of differences among faculty is apparent. The use of CSM scales to identify changes in learning prescriptions seems to be utilized at a low level. The sophistication of the paper and pencil CSM instrument has been questioned by several of the teaching faculty as they reviewed the educational prescriptions, based on their observation of students.

Objective 2:
To implement each instructional delivery system within the curriculum.

Evaluation:
Secretarial Science: (Since Developmental Students have completed their program, you will not be able to interview them.) Interview students with this question in mind: to what extent do you feel that your instructors were aware of your learning strengths and weaknesses and tailored your instruction on the basis of these? With this information in mind, please evaluate the results of this objective.

1	2	3	4	5
	X			
Good		Average		Poor

Comments: Comprehension of the information from CSM does not seem thorough enough to prescribe and utilize alternative delivery systems. The range of materials necessary for alternate delivery systems are limited.

Objective 3:

To provide supportive counseling services, with an emphasis on job-goal exploration and job selection according to learning style to students participating in the project.

Evaluation:

Secretarial Science: After interviewing students, rank your perception of the effectiveness of the counseling services via CSM.

1	1.5	2	3	4	5
	X				
Good			Average		Poor

Comments: Students were aware of the benefits of counseling through CSM, and were affected by CSM. However, they were not aware of career opportunites related to their CSM profile.

Evaluation:

Secretarial Science: After interviewing instructors, rank your perceived effectiveness of the counseling services via CSM.

1	1.5	2	3	4	5
	X				
Good			Average		Poor

Comments: Instructors were very supportive of CSM counselor. Many instructors perceive a CSM as static, however, when it should be perceived as changing.

Evaluation:

Developmental Studies: After interviewing instructors, rank your perceived effectiveness of the counseling services via CSM.

1	2	3	4	5
	X			
Good		Average		Poor

Comments: Insufficient information available, particularly with regard to retention and advancement of Developmental Studies students.

Objective 4:
To study the effectiveness of the pilot program as it would relate to implementation in other vocational/technical programs.

Evaluation:
Evaluate the methods described according to their ability to give an accurate study of the effectiveness of the pilot program as it would relate to implementation in other vocational/technical programs.

1	2	3	4	5
X				
Good		Average		Poor

Comments: Unable to rate effectiveness of pilot experimental program. However, many programs outside the pilot program have been significantly and positively affected and lend themselves well to future project expansion.

Objective 5:
To determine specific objectives and procedures for Phase IV.

Evaluation:
Having reviewed the accomplishments of the initial research project and seen successess and needs for improvement, please give your opinion as to the feasibility of the objectives of this three year plan.

1	1.3	2	3	4	5
	X				
Good			Average		Poor

Comments: Long-range objectives certainly seem attainable in view of the original project. The key to accomplishment of these objectives will be relative to the kinds of in-service programs initiated. Even though resources are made available to the staff, they will not necessarily take advantage of these because of "too many papers to grade, too many contact hours..." A program for faculty development that includes within it the concepts of CSM would be appropriate and necessary.

A P P E N D I X Q-3

EVALUATION SYNOPTIC STATEMENT

May 12, 1978

Dear Sirs:

This letter is written in reference to and in evaluation of the Cognitive Style Mapping Project which was designed and implemented in the Spartanburg Technical College, 1977-78 academic year. In the attached document you will find the results our inquiries on Phase III Evaluation Form which was provided as the evaluation mechanism. In addition to those ratings and evaluations we would add the synoptic statement emodied in this letter.

From the outset we note no evaluation of the research design which was implemented in conjunction with the project. With this in view we have subdivided our thoughts into several areas of emphasis. The first is the theoretical model for implementing CSM in the classroom. The project adopted a Counselor as Consultant model for implementation in this regard. A consistant theme emerged which noted the excellent relationships between the CSM Counselor and project staff and teachers. There was a good level of interaction and support noted by faculty involved. Also, in this regard we noted the need for continued in-service about the concepts, scales, and implications of the CSM method. Several persons noted some lapse in knowledge of the scales and concepts. In addition, the extension of the scale's implications into usable educational experience seemed to need support and in-service focus.

The second theme noted in the evaluation dealt with the presentation of data to students. The prescription forms and related symbols seems to be more appropriate for use by professionals. Student information forms with augmented scale description and how the student scored on the scale seem to be a desirable change. This is especially true in an individual study format where students may choose from a variety of delivery formats. A student in this case must be able to wisely choose the format and augment the teachers view of themselves.

The third theme noted in the evaluation dealt with data about students. Information which affects prescriptions was unavailable to teachers and staff. The profile of stop-out students was unavailable as was data about retention of student within the experimental and control groups. This important information, as well as demographic data to augment the prescription, (from a Student Data Management System about progress through the program) seems to be necessary.

The awareness of the total faculty about the viability of CSM was the most outstanding and laudable result of the project. It is evident to the evaluation team that many parts of the college have picked up CSM and have started implementation plans and projects. This development dwarfs the project itself and is the "bush-fire" which motivates action and growth. Every person outside of the project we were in contact with during these two days has been able to address the concept, manipulate the elements of CSM and behaviorally observe the learning process with new insight.

Dr. Bob Day
Dr. Tom Griffin
Dr. Dave Mahrer

The evaluation of the research project was held on May 11-12, 1978. Evaluators were: Dr. Bob Day, Curriculum Consultant, State Board for Technical and Comprehensive Education; Dr. Tom Griffin, Director of Advancement Studies Central Piedmont Community College; and Dr. Dave Mahrer, Associate Director of Career Development, University of South Carolina.

Evaluators had read the grant proposal and the objective analysis prior to arrival. The goals of the evaluation were to complete a rating scale on the objectives and to write a short report to include the project's strengths, weaknesses, and recommendations for the future. The process for the evaluation can be seen in the agenda.

In addition to the written evaluation, the following points were made in discussion.

1. Faculty demonstrated highly positive attitudes toward CSM.

2. Faculty and staff need to increase their level of awareness of the concepts involved in CSM. We need to "get away from the map itself" and into the use of the concepts.

3. Demographic data--race, course load, whether or not they are working-should be helpful addition to CSM data.

4. Prescriptions should be updated occasionally.

5. Retention should be followed up.

6. Grant objectives should be written clearly and in a measurable fashion.

7. The format of the instrument and presentation of the map should be done so that the concepts can be internalized by the students.

8. For expansion next year several approaches should be taken:
   a. the idea should be presented through the faculty senate.
   b. State TEC should be thoroughly familiarized with the project activities and with CSM itself.
   c. CSM should be an institution wide responsibility not just that of the project director.

A P P E N D I X - R

EXPANSION PLAN

STATEMENT OF INTENDED OUTCOMES

1978 - 79 EMPHASIS: CSM TO FACILITATE LEARNING HOW TO LEARN AND TO FACILITATE ACADEMIC COUNSELING.

Goal: The purpose of the first year is to provide for an introduction to the basic concepts of Cognitive Style Mapping for faculty and staff and to implement the use of CSM as a conceptual framework to help students, faculty and staff to understand student learning behaviors and to capitalize on student learning strengths in their classroom performance.

Objective 1:

In August of 1978, faculty, administrators, and counselors who work in ten (approximately 650 students) of the College's twenty-eight curriculum departments will receive inservice on the general concepts involved in Cognitive Style Mapping and will learn how to interpret the CSM Interest Inventory as well as how to prescribe individualized programs of study based on a student's Cognitive Style Map.

Objective 2:

Students involved in the ten departments will take the CSM Interest Inventory during the first week of school and will receive a group interpretation (by a counselor) along with an individual copy of his or her CSM profile by the end of the second week of school. Students experiencing difficulty in the classroom will have an opportunity for an individual follow-up during the first six weeks of school with a counselor.

Objective 3:

Each instructor participating in the project will receive by the end of the second week of school, a copy of his or her student's CSM profile along with a composite group map of the students in his or her department.

Objective 4:

Each instructor participaing in the project will use the student's Cognitive Style Maps to facilitate classroom learning and will assist the student in using CSM to optimize classroom learning.

Objective 5:

In the Spring of 1979, faculty and staff will receive inservice training on the use of CSM in curriculum development.

1979 - 80 EMPHASIS: EXPANSION OF PROJECT AND THE USE OF CSM IN CURRICULUM DEVELOPMENT.

Goal: The purpose of the second year is to expand the project into three additional curriculum departments (i.e. to accomplish all of the first year objectives in three additional departments, approximately 350 students,) to continue these objective in the original ten departments, and to add the use of CSM in curriculum development in the ten original departments.

Objective 1:
By December 1, 1979, faculty, administrators, and counselors in the ten original departments will receive inservice training methods of developing multi-media instructional materials.

Objective 2:
Students will have the option of interpretation of their CSM profiles via a written guide, audio-tape, slide-tape, and video-tape as well as individual and group counseling.

Objective 3:
Students in the departments participating during the 1978-79 year will be taught how to discern the cognitive style needed for success in using the various instructional materials that are available in their classes. For example, instructors using seminars, audio-tapes, and programmed texts will teach the student the cognitive styles needed for success in learning via each of these three methods.

1980 - 81 EMPHASIS: EXPANSION OF PROJECT AND THE ADDITION OF COUNSELING, ADMINISTRATIVE, AND TEACHING STYLES.

Goal: The purpose of the third year is to expand the project into three additional curriculum departments (i.e. to accomplish all of the first year objectives in three additional departments, approximately 350 students), to accomplish all of the 1978-79 objectives for departments beginning involvement in 1979-80 and to add the use of counseling , administrative, and teaching styles for the ten departments beginning involvement during 1978-79.

Objective 1:
By August 1980, faculty, administrators, and counselors will receive inservice training to determine their counseling, administrative, and teaching style.

Objective 2:
Students will receive a student guide which will describe the teaching methods of each instructor in his or her department. (Example: Jane Doe, Business Administration, lecture, seminars, programmed text; John Doe, Engineering, lecture, slide-tapes.)

Inherent in these objectives is the assumption that as each new curriculum department initiates CSM involvement, they will begin at the Objectives listed for 1978-79. All original inservices will be video-taped.

Procedures: These objectives take the product of the work of an ad hoc committee which included representation from each academic division in the school as well as from the student services counseling staff.

Problems and Solutions: Hopefully, there are no problems associated with this plan.

APPENDIX - S

ADDITIONAL PROJECT ACTIVITIES

In addition to the activities described in the body of this paper, the following additional activities were undertaken which were outside of the realm of project objectives.

1. All of the students in the Allied Health Division (120) took the CSM Inventory and their maps were interpreted.

2. Fifty additional Developmental Studies students and 20 additional Business Adminstration students were "mapped."

3. Inservice training was held for all Allied Health Instructors, and all Student Service Counselors. A new model for inservice training was developed and field tested with Developmental Studies instructors.

4. CSM self-interpretation devices (written and audio-tape) were developed.

5. A three year expansion model was developed for CSM at Spartanburg Tech by an ad hoc committee which represented each instructional and staff component of the school.

6. A slide tape for faculty inservice on CSM was written.

7. Two inservice training programs were presented at other schools: Midlands Technical College and Greenville Technical College.

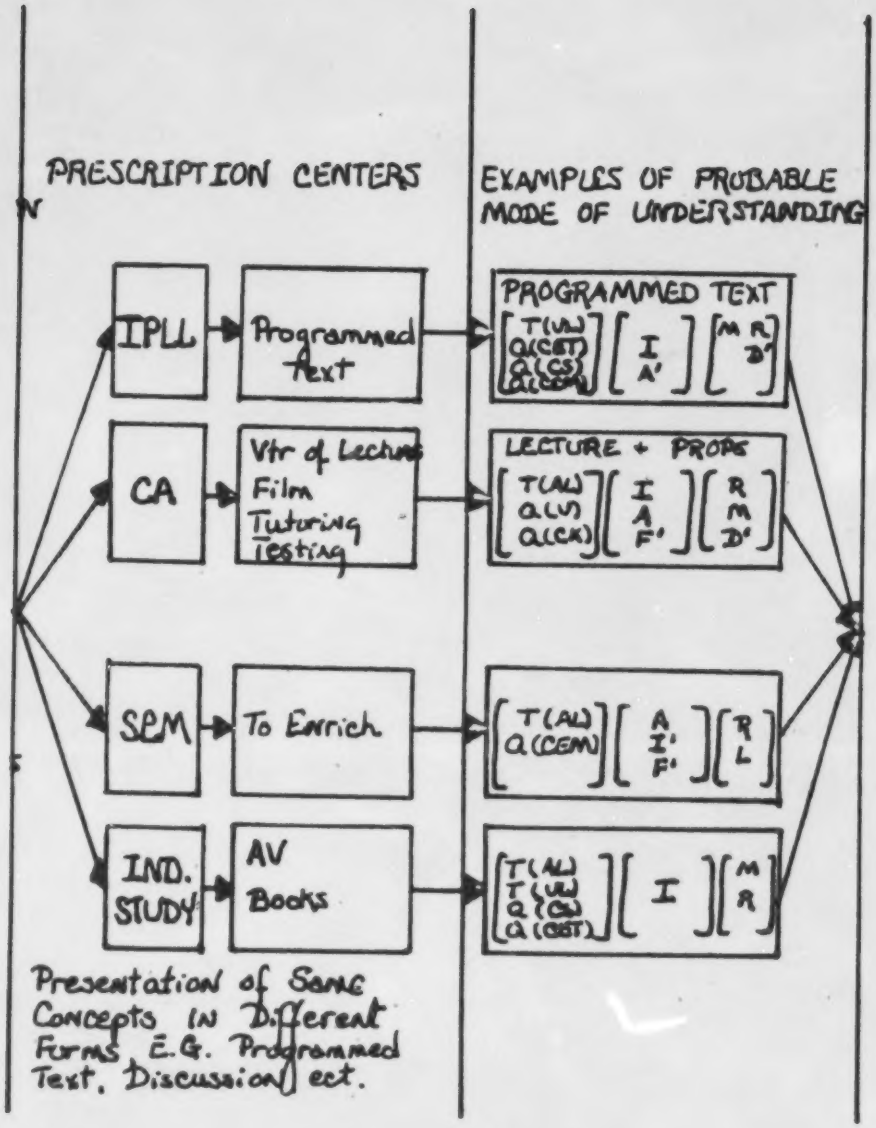
A P P E N D I X - T

DEVELOPMENTAL STUDIES CURRICULUM REVISION VIA CSM

Prior to the inception of this project, the Developmental Studies math and language curricula at Spartanburg Tech were based on the Individualized Manpower Training System (IMTS), a self-paced, self-instructional, multi-media individualized system for delivery of basic remedial training. The curriculum is structured in modules or units, with pre and post-test scores on the Tests of Adult Basic Education being the criteria for mastery.

When instructors reviewed the system, they found that it appealed to students who were of the type of cognitive style that gravitated toward structure, independent work, and learning through written as well as oral fashions. A decision was made to augment the system in each unit of instruction with additional materials so that in addition to the IMTS delivery system, four other deliveries were added: 1. Programmed written materials, 2. Audio-visuals (audio-tapes and VTR's), 3. Faculty-lead seminar, and 4. Youth-tutorial. Materials and equipment which were purchased and/or developed to alter the IMT to allow for these other delivery systems are found in Appendix H-2.

The additional delivery systems and their commensurate cognitive styles are:


PRESCRIPTION CENTERS
EXAMPLES OF PROBABLE MODE OF UNDERSTANDING
IPLL
Programmed Text
PROGRAMMED TEXT
CA
Vtr of Lecture
Film
Tutoring
Testing
LECTURE + PROPS
SPM
To Enrich
IND. STUDY
AV
Books
Presentation of Same Concepts in Different Forms E.G. Programmed Text, Discussion ect.

A P P E N D I X - U - 1

STRUCTURE OF THE CAREER COUNSELING PROGRAMS

Developmental Studies:

In Developmental Studies, the structure of the career counseling program was the groups and individual interpretation of the career counseling assessment devices according to the procedures found in Appendices M-2 and M-3.

Secretarial Science:

In Secretarial Science, the structure of the career counseling program also included the group and individual interpretations of the career counseling assessment devices according to the procedures found in Appendices M-2 and M-3.

The program also included five group presentations which were scheduled for experimental and control groups. The sessions lasted approximately 50 minutes each. In each group session the Counselor continued to emphasize CSM and the SDS (in the respective group sessions) as conceptual frameworks for career exploration, planning and decision-making. The group sessions were:

September	Film: "Office Careers" featuring job options for secretaries; discussion followed.
November	Slide-tapes: "Office Education" featuring job options for secretaries.
January	Discussion on resume writing and interviewing; orientation to Job Placement Office.

February	Filmstrip presentation on the lifelong process of career exploration.
April	Interviewing do's and don'ts: a demonstration.

APPENDIX -U-2

CURRICULUM/CAREER INFORMATION VIA CSM

This booklet contains information about the cognitive styles associated with success in each of the curriculum/career areas at Spartanburg Technical College. The purpose of this information is to provide a basis for helping students in exploring curriculum / career areas and in making realistic career decisions.

Each student has his or her own cognitive style. Each curriculum/career area by design requires a definite cognitive style. While there are many other factors such as motivation and abilities that influence career development, students whose cognitive styles are similar or matched with the cognitive styles of specific career areas will:

1. Be more interested
2. Be more successful
3. Be less likely to drop out

Ken Barnhill
May, 1978

TABLE OF CONTENTS

	PAGE
ALLIED HEALTH	1
Dental Assistant	2
Ward Secretary	3
Child Care	4
Medical Lab Technician	5
Radiologic Technology	6
Operating Room Technician	7
BUSINESS DIVISION	8
Accounting	9
Marketing	10
Data Processing Operations	11
Computer Programming	12
Management	13
Transportation Management	14
Secretarial Science	15
HORTICULTURE	16
Horticulture	17
INDUSTRIAL DIVISION	18
Industrial Management	19
Industrial Electronics	20
Automotive Technician	21
Machine Tool Technology	22
Welding	23
Air Conditioning/Refrigeration	24
ENGINEERING	25
Mechnical Engineering Technology	26
Civil Engineering Technology	27
Electrical Engineering Technology	28
Drafting	29

ALLIED HEALTH

148

DENTAL ASSISTANT

SYMBOL		CULTURAL DETERMINANTS	MODALITIES OF INFERENCE
T(AL)	T(AQ)		
T(VL)	T(VQ)		
Q(A)	Q(C)'		
Q(T)	Q(V)		M
Q(P)	Q(CEM)'		R
Q(CES)'	Q(CET)		
Q(CH)	Q(CK)		
Q(CP)	Q(CS)		
Q(CT)			

119

WARD SECRETARY

SYMBOL		CULTURAL DETERMINANTS	MODALITIES OF INFERENCE
T(AL)	T(VL)		
Q(V)	Q(CEM)'	I	M
Q(CET)	Q(CKH)		R
Q(CP	Q(CS)		

150

CHILD-CARE

SYMBOL		CULTURAL DETERMINANTS	MODALITIES OF INFERENCE
T(AL)	T(VL)		
Q(A)	Q(V)		
Q(P)	Q(CF)	'	L
Q(CES)	Q(CET)	A' or F'	R'
Q(CH)	Q(CK)		
Q(CP)	Q(CS)		

MEDICAL LAB TECHNICIAN

SYMBOL		CULTURAL DETERMINANTS	MODALITIES OF INFERENCE
T(AQ)	Q(CEM)		
T(VL)	Q(CET)		
T(VQ)	Q(CF)	I	M
Q(V)	Q(CS)	A' or F'	R
Q(P)	Q(CTM)		L

RADIOLOGIC TECHNOLOGY

SYMBOLS		CULTURAL DETERMINANTS	MODALITIES OF INFERENCE
T(AL)	T(VL)		
Q(V)	Q(CEM)'		
T(AQ)	T(VQ)	A	R
Q(T)	Q(CET)	I'	M'
Q(CH)	Q(CKH)		
Q(CP)	Q(CS)		
Q(CT)'			

OPERATING ROOM TECHNICIAN

SYMBOLS		CULTURAL DETERMINANTS	MODALITIES OF INFERENCE
T(VL)	T(AL)		
Q(A)	Q(V)		
Q(T)	Q(P)		
Q(CEM)'	Q(CET)	I	M
Q(CH)	Q(CK)	A'	R
Q(CKH)	Q(P)	F'	
Q(CS)	Q(CT)'		

BUSINESS DIVISION

ACCOUNTING

SYMBOLS	CULTURAL DETERMINANTS	MODALITIES OF INFERENCES
T(VQ)		
T(VL)		
Q(V)	I	M
Q(CET)	A'	D'
Q(CKH)		L'
Q(CS)		K
Q(CTM)		

MARKETING

SYMBOLS		CULTURAL DETERMINANTS	MODALITIES OF INFERENCES
T(AL)'	T(AQ)'		
T(VL)	Q(CP)		
T(VQ)	Q(CS)		
Q(V)	Q(CT)	I	L
Q(CEM)	Q(CET)	A'	
Q(CH)	Q(CK)*		
Q(CKi)	Q(CES)*		

* SYMBOL MAY BE NECESSARY FOR CERTAIN JOBS WITHIN CAREER AREAS, BUT NOT FOR ALL.

DATA PROCESSING OPERATIONS

SYMBOLS		CULTURAL DETERMINANTS	MODALITIES OF INFERENCE
T(AL)	T(AQ)		
T(VL)	T(VQ)	I	M
Q(V)	Q(A)	A'	R
Q(CET)	Q(CS)		

COMPUTER PROGRAMMING

SYMBOLS		CULTURAL DETERMINANTS	MODALITIES OF INFERENCE
T(AL)	T(AQ)		
T(VL)	T(VQ)		
Q(A)	Q(V)	I	M
Q(P)	Q(CEM)'	A'	R
Q(CET)	Q(CKH)		
Q(CS)			

MANAGEMENT

SYMBOLS		CULTURAL DETERMINANTS	MODALITIES OF INFERENCE
T(VL)	Q(CS)		
T(AL)	Q(CET)		
Q(CEM)	Q(V)*	I	L
Q(CET)	Q(CH)	A'	
Q(CK)	Q(CKH)		
Q(CP)			

* SYMBOL MAY BE NECESSARY FOR CERTAIN JOBS WITHIN CAREER AREAS, BUT NOT FOR ALL.

TRANSPORTATION MANAGEMENT

SYMBOLS	CULTURAL DETERMINANTS	MODALITIES OF INFERENCE
T(AL)		
T(VL)		
Q(V)		
Q(T)	I	M
Q(CEM)*		R'
Q(CET)		K*
Q(CH)*		
Q(CS)		
Q(CTM)		

* SYMBOL MAY BE NECESSARY FOR CERTAIN JOBS WITHIN CAREER AREAS, BUT NOT FOR ALL.

SECRETARIAL SCIENCE

SYMBOLS	CULTURAL - DETERMINANTS	MODALITIES OF INFERENCE
T(AL)		
T(VL)		
Q(A)		
Q(P)		
Q(CEM)	I	M
Q(CET)		
Q(CKH)		
Q(CP)		
Q(CS)		
Q(CES)		

* THIS MAP APPLIES TO ALL AREAS (LEGAL, MEDICAL, EXECUTIVE, AND CLERK TYPIST.)

16

HORTICULTURE

HORTICULTURE

SYMBOLS		CULTURAL DETERMINANTS	MODALITIES OF INFERENCE
T(AL)	Q(CES)'		
T(VL)	Q(CH)'		
T(VQ)'	Q(CR)	I	R
Q(O)	Q(CKH)	A'	L
Q(T)	Q(CS)		
Q(V)	Q(CT)		
Q(P)			

INDUSTRIAL DIVISION

INDUSTRIAL MANAGEMENT

SYMBOLS		CULTURAL DETERMINANTS	MODALITIES OF INFERENCE
T(AL)	Q(CEM)'		
T(AQ)	Q(CET)		
T(VL)	Q(CH)	I	L
T(VQ)	Q(CKH)	A'	K'
Q(V)	Q(CS)		
Q(P)	Q(CT)		

INDUSTRIAL ELECTRONICS

SYMBOLS		CULTURAL DETERMINANTS	MODALITIES OF INFERENCE
T(AL)	T(AQ)		
T(VL)	Q(CET)		
T(VQ)	Q(CKH)	I	L
Q(A)	Q(CS)	A'	K
Q(O)	Q(V)		
Q(P)			

167

AUTOMOTIVE TECHNICIAN

SYMBOLS		CULTURAL DETERMINANTS	MODALITIES OF INFERENCE
T(AL)	Q(V)		
T(VL)	Q(P)		
T(AQ)	Q(CET)		
T(VQ)	Q(CS)	I	L
Q(A)	Q(CT)	A'	K
Q(O)	Q(CP)		
Q(T)	Q(CKH)		

SYMBOL MAY BE NECESSARY FOR CERTAIN JOBS IN CAREER AREAS BUT NOT FOR ALL.

MACHINE TOOL TECHNOLOGY

SYMBOLS		CULTURAL DETERMINANTS	MODALITIES OF INFERENCE
T(AL)	Q(V)		
T(AQ)	Q(P)		
T(VL)	Q(CET)	I	L
T(VQ)	Q(CKH)	A'	
Q(A)	Q(CS)		
Q(T)	Q(CT)		

SYMBOL MAY BE NECESSARY FOR CERTAIN JOBS IN CAREER AREAS BUT NOT FOR ALL.

WELDING

SYMBOLS		CULTURAL DETERMINANTS	MODALITIES OF INFERENCE
T(AL)	T(VL)		
T(VQ)	Q(A)		
Q(V)	Q(P)	I	L'
Q(CET)	Q(CKH)	A'	M
Q(CS)			

AIR CONDITIONING/REFRIGERATION

SYMBOLS		CULTURAL DETERMINANTS	MODALITIES OF INFERENCE
T(VL)'	T(VQ)		
T(AL)'	T(AQ)'		
Q(S)'	Q(A)	I	M'
Q(T)	Q(V)	A'	R
Q(CET)	Q(CH)'		
Q(CKH)	Q(CS)		

ENGINEERING

172

MECHANICAL ENGINEERING TECHNOLOGY

SYMBOLS		CULTURAL - DETERMINANTS	MODALITIES OF INFERENCE
T(AL)	Q(CES)*		
T(VL)	Q(CET)		
T(VQ)	Q(CH)		
Q(V)	Q(CK)*	K	L
Q(T)'	Q(CKH)	A'	K
Q(P)	Q(CS)		
Q(CEM)*	Q(CT)*		

* SYMBOL MAY BE NECESSARY FOR CERTAIN JOBS IN CAREER AREAS BUT NOT FOR ALL.

CIVIL ENGINEERING TECHNOLOGY

SYMBOLS		CULTURAL-DETERMINANTS	MODALITIES OF INFERENCE
T(AL)	Q(CK)		
T(AQ)	Q(CKH)		
T(VL)	Q(CS)		
T(VQ)	Q(V)	I	L
Q(T)	Q(P)	A'	K
Q(CET)			

ELECTRICAL ENGINEERING TECHNOLOGY

SYMBOLS		CULTURAL DETERMINANTS	MODALITIES OF INFERENCE
T(AL)	T(AQ)		
T(VL)	T(VQ)		
Q(V)	Q(P)		
Q(CET)	Q(CKH)	I	L
Q(CP)	Q(CS)	A'	K
Q(CT)			

DRAFTING

SYMBOLS		CULTURAL DETERMINANTS	MODALITIES OF INFERENCE
T(AL)	Q(CES)		
T(VL)	Q(CET)		
T(VQ)	Q(CKH)		
Q(V)	Q(CS)	I	L
Q(T)'	Q(P)	F'	K
Q(CEM)'			

A P P E N D I X - V

PROJECT PUBLICITY

Articles on the project were published in the following state newsletters throughout the year:

Adult Education Newsletter.
Vol. 3, No. 2. Jan, 1978.

South Carolina Personnel and Guidance Association Newsletter.
Fall, 1977.

South Carolina College Personnel Association Newsletter.
Fall, 1977.

TEC NOTES.
June/July, 1978.

VRCU: South Carolina Vocational Research Coordinating Unit Newsletter.
May, 1978

A presentation on the incorporation of Cognitive Style Mapping and the Adkins Life Skills program was made in June to the S. C. State Adult Education Conference, Myrtle Beach, S. C. Melva Huffstetler and Tony Ferrara were presenters.

A P P E N D I X - W

THE ADKINS LIFE SKILLS PROGRAM

The Adkins Life Skills Program is a structured, multi-media curriculum designed to facilitate the development of career exploration and job-finding and keeping skills among adults. The model was developed by Dr. Winthrop R. Adkins, Associate Professor of Psychology and Education, Teachers College, Columbia University and is marketed by The Psychological Corporation. The Life Skills Program incorporates a four stage structured inquiry model designed to facilitate student understanding and internalization of ten content units:

Who I Am and where I Want to Go.

Ten Occupational Fields: How Do I Explore Them?

Jobs and Training: Beginning the Search.

Employment Agencies and Personal Contacts.

Choosing a Good Job For Myself.

Planning for Personal Goals.

Developing a Vocational Plan.

Looking Good on Paper.

The Job Interview: How to Be Effective.

Keeping My Job: Habits That Help.

Life Skills is taught by an instructor, called a Life Skills Educator, who is specially trained.

In total, the Life Skills Program presents some 150 hours of instruction in a uniquely creative and supportive atmosphere. All skills are practiced and evaluated by each student and by the group as a whole, as well as by

instructor. Because of the necessity for a cogent, closely knit group, class size is limited to fifteen students. The program is designed for maximum flexibility, and the instructor may use as many resources as he can find to augment each unit, while at the same time retaining the basic structure of the program.

A P P E N D I X - X

THE SELF-DIRECTED SEARCH FORM E

The Self-Directed Search (SDS) is a self-administered, self-scored, and self-interpreted vocational counseling tool. The SDS contains two booklets, the assessment booklet and the occupational classification booklet.

To use the SDS, a person fills out the assessment booklet and obtains a two letter occupational code. Then he uses the code to locate suitable occupations in The Occupations Finder. In essence, the SDS provides a vocational counseling experience by simulating what a person and his counselor might do in several interviews. Most people complete the SDS in 40 to 60 minutes.

The SDS is based on the theory of vocational choice by John L. Holland (1973). Form E was selected for this study because it is written at the sixth grade level.

The six personality types and some of the commensurate environments are detailed below:

Holland's Personality Types

1. The REALISTIC Person likes activities that involve working with objects, tools, machines and animals. He or she dislikes educational, social and art activities. This person, would be described as emotionally stable, practical, frank, materialistic and unsocial. The realistic person has ability in manual, mechanical, agricultural, electrical and technical areas. He or she chooses agricultural, technical, skilled trade, and engineering vocations.

2. The INVESTIGATIVE Person likes to use words, ideas, and symbols to discover meaning. He or she enjoys science, math, and reading. The Investigative person dislikes social situations, being a leader and doing the same thing over and over again. Scholarly, original, independent unsocial, and self-confident are words which describe this person. He or she has ability in mathematics, science and language.

The Investigative person chooses vocations that involve the use of science and mathematics and the understanding and control of physical, biological and cultural events.

3. The ARTISTIC Person likes to create art forms and products. He or she dislikes repetion and order (particularly those activities which will be described as conventional). This type of person is described as creative, independent, original, emotional, idealistic, and impulsive. He or she has abilities in the areas of music, art, writing and drama. The Artistic person tends to select vocations in these areas.

4. The SOCIAL Person likes activities which involve handling, helping, and dealing with others. He or she dislikes activities dealing with mathematics, materials, tools, and machines. The Social person is sociable, friendly, cheerful, popular, kind, self-accepting and understanding. This person has a high ability in helping and leading people. This person has low mathematic ability. The social person chooses vocations in the areas of education, therapy, religion, and community services.

5. The INTERPRISING Person likes activities that involve manupulating other people to attain goals or to make money. He or she dislikes the scientific activities. This person is described as persuasive, talkative, agressive, social, confident, dominent, adventurous, and emotionally stable. The Enterprising person has abilities in leadership and the use of power. He or she selects vocations in the area of sales leadership and supervision.

6. The CONVENTIONAL Person likes clerical and computational activities. He or she dislikes unstructured activities. This person is conforming, orderly, conservative, efficient and has the need to create a good impression. The Conventional person has mathematical and clerical ability. He or she chooses computational and clerical vocations in the business and economic fields examples of activities in the conventional vocations are keeping records, filing materials, reproducing materials, organizing data, and operating business and data procession machines.

A P P E N D I X - Y

ADULT BASIC LEARNING EXAMINATION (ABLE)

The ABLE, Level III is a battery of tests designed to measure the level of educational achievement among adults with achievement levels grades 9 - 12. Results are stated in percentile ranks and stanines for six scores: vocabulary, reading, spelling, math computation, problem solving, and total math. Total testing time is approximately three and one-half hours. The ABLE was selected for post-testing because it has .83 reliability coefficient, was normed on adults in high school equivalency, vocational training, and WIN programs, and is written in a relevant format for adults.

Post-test scores on the YETP students were compared with the Group IV adult sample in the ABLE, Level III Handbook.